The Builder.

Vol. XVI.—No. 826.

The Architecture of our Day,—in London.

IN drawing attention lately to the prevalence of bad art,—as in the houses of the London suburbs,—as well as to the neglect elsewhere, of many of the elements requisite to effect of true *street*-architecture,—and in claiming, nevertheless, on the evidence, credit to our architects, for having made advances themselves, and for having achieved works which really did not compare unfavourably with those of some of the celebrated periods of art-history, and gave hope and promise of a brilliant future,—we were not unprepared for a charge of inconsistency, and for denial of our main conclusions by some of those who form their opinions on their prejudices, who are impenetrable to evidence from all but one side, or who have not that faculty—most rare, whilst essential to any value of opinion—the power allying with itself the virtues of sincerity and humility, needed to the duly weighing of facts all and several, and the noting from them how the real preponderance lies. Not to all, indeed, are given the qualities that are called for in the office of the judge: yet, art would gain greatly, even through exercise of opinion of the multitude, could there be diffused a sense higher than what now prevails, of the obligation, we may say morally, to examine before the expression of an opinion whether it is that which is really felt. Even those who admit that they know nothing of art, but so generally assert that they know what pleases them, are amongst the class who make the obstacle to progress: for, such persons do not *know* to the extent they suppose; at least, their emotions are not worth an hour's purchase, and are no indication of conclusions after the exercise of thought, and after ocular observations repeated during years, which are what the artist has to cater for.

Art is not the matter of capricious belief and different to science—unstable and not demonstrable—as the House of Commons was lately told: the fact is not that the art and the artist fail; but that force of words cannot describe the higher operations of mind—only too subtle for weight and measurement. Who, however, shall doubt that the good art is created and can be appreciated by laws which are as much of nature, and eternal, as those of science and philosophy, and that it is as much within the range of the human understanding to feel and to act upon the one, as it is to read and expound and to carry forth the purpose of the other? Architecture, especially, as a field, is not dependant upon chance, or incapable of being appreciated as living *art*, in its contemporary works, and these works enduring in their merit, by the public. Perfect convenience; adequate strength—actual, and absolutely apparent; that treatment of materials and features which eschews every pretence, and yet admits and requires every added grace of decoration and consistent ornament: these qualities, necessary to the existence of art in architecture, though, may be, not forming the whole of it, are not beyond the recognition of the public; and if estimated, they alone would preserve us from the greater part of such bad architecture as prevails. Errors on the part of architects—such as the exaltation of what is only style, or of *mere* structural truth as though *ipso facto*, beauty and art; or of *mere* novelty as beauty,—we admit: certain controversies in our ranks—some of which, one would think impossible, were the simple qualities which we have stated duly recognised and understood—are unfavourable to our *prestige* with the public; yet withal, the growth of the good principles is clearly apparent where architects are employed, and least influenced or interfered with, as in the case of buildings for municipal and commercial purposes, some of which in the city of London were mentioned, or alluded to, in our last article.*

To the multitude of writers who never will see that architecture in our day has produced, or can produce anything of excellence—whose aspersions come forth so glibly, because to condemn is held a sign of superior judgment, and because of an absolute opacity visually or intellectually to the beautiful in one of its phases,—to mere mediævalists, or those who see beauty in one sole style, and in no works that are out of it; or to those who will not recognise a good feature should there chance to be also a defect, we could have no hope of demonstrating that the balance is really tending in the desired direction. We would not, indeed, ourselves lay claim to any superior powers of discernment; yet it is possible, from the nature of our duties, that we may be favourably situated for receiving facts from opposite sources, as that we are not unpractised in the examination and estimation of them.

Concluding that there is, in the works of our day, every encouragement to perseverance, we do not, however, the less feel the necessity for understanding those counter-checks or even retrograde movements which characterize the course of our art. The difficulty herein, occurs mainly during the actual incidence of the operations of either kind, progressive or retrogradatory; for, at the end of half a century, it is easy to measure the alterations made in architecture, just as it is to appreciate the fact of advance in public health, contrasting the present state of mortality with that of any portion of the Middle Ages, when plague or "black death" prevailed. The test of actual position is this: Should we do well to exchange the experience that has accrued in half a century, and our prospects thereby, for any period of art that our own is occasionally contrasted with? If the answer be in the negative, that is tantamount to approval of our position, so far as the future is concerned, and as our means and exertions have to operate in the eventual trial.

The Duke of Argyll has been lately, at Dundee, asking the parallel question, or one in which our own is comprised,—Is there at present, advancement going on in civilization? For ourselves we may ask,—Even looking at the state of liberty in France, and the circumstances which have led to the prosecution of M. de Montalembert; at the excesses of the Anglo-Saxon race in new countries, and the degeneracy of it physically, as stated, in America; or at the positive destruction of certain interesting races before the tide of civilization, and the vices which it seemingly brings with it,—who, after all, reading dispassionately the history of the world, can lightly question that,—

"—— through all the ages, one increasing purpose runs,"

or wish in art, even were it possible, to revive the circumstances of the past, and relinquish hopes such as we will not repress. Art is but *one* of the agents of civilization. It is possible that the development of one agent—say that which dates from the invention of printing—may have caused less attention to be paid to another agent, and, therefore, what may seem to be a retrograde movement in some point of view. If, however, such movement do occur sometimes in our art, it is merely prefatory to a fresh start, aided by every other of the agents, and to the attainment ultimately of a higher position—correspondent to the accrued gain in civilization itself.

What is now wanting on the part of architects is an effective leading of the public taste in lieu of that habit with them of deference, which has come to warp, in innumerable, if in isolated cases, their own real belief—so constituting them part of the public, as falling into the same error and custom of self-delusion. We are, however, justified in saying that there are two very opposite lines of influence taken in the body of what are comprehended by the public as architects,—one sort of influence such as becomes abundantly manifest in the professional societies, in many contributions to our own journal, and in the class of buildings we have last spoken of,—as generally in the prevalence of sound views on points connected with materials and structure, which we have specified, and which may be due in great part to the lesson from the Mediæval architecture,—the other, an influence of those calling themselves architects, or usurping the functions of designers without the abilities, and an influence whether of these or of the public, whence result the bad architecture of the suburbs and the general London streets, all the pretences in material and the deformities in ready-made ornament, and a common absence of art, as even in the modern exhibition of that Mediæval style itself, whence so much of value has other ways been derived.

There are two sorts of forces at work—either, in point of fact, claiming to exemplify the office of living architecture; yet either, we doubt not, able to supply us with a majority of adherents in assent, to the views on the side where the truth lies. For, it is the practice of architecture, in certain cases, rather than any real prevalent principle, which requires to be amended. With a demand for good art in the homes of the people, an order of talent which is now confined nearly to public buildings would be sought for; or the inferior order, by whatever professional or trading designation it may now be known, would qualify itself or ensure supply of the needed article.

We trust we succeeded lately in awakening attention—not previously very apparent—to the amount of building-work going on in the suburbs of London, in which hardly any evidence of what we might now assume to be admitted principles in our art and our profession could be discerned. As a public question—for such we doubt not it will become—it must be matter of indifference by whom the art is supplied. The public interest can only be as to the existence somewhere of qualifications for the supply; and the course for architects claiming the first rank, and the only available course, is to educate the public to the discrimination of these qualifications, and to secure permanently the superiority in their own ranks. At present we hold that professional abilities of a high order have been demonstrated in certain important works. It is for the architects of such works to discover by what operation on opinion, or whether by any modification in their own calling, they can extend the domain of architecture over the mass of town and country building. If the way cannot be found, there are sufficient evidences that their legitimate calling will be further invaded by others.

It is not unimportant to the question we are adverting on, to observe that several of the recent buildings of the City, which we had in view in our last remarks, appear to have been in some degree commercial speculations by their architects, and those not men very widely known to fame. It is to be observed that the art in these works—certainly of a character betokening advancement—is part of the investment, and that all the aims, architectural, structural, and commercial, seem to be reached at once. To what extent the like agency might be resorted to by the profession in common house-building, we will not now examine; but, clearly, by the present race of speculators, even what are now the demands of the public are not supplied, either in regard to art, or to structure and convenience.

We have already mentioned some of the features which have entered into the recent architecture of the City: we have noted the good art growing from the very difficulties of site, and have perceived that superior expression has been obtained under conditions, as those of a shop-front, or of a large area of window-opening, which sometimes had been thought fatal to all architectural expression. We have seen where there has been some approach to the scenic effect, or that of true *street-architecture*, which we have desired; as well as that symmetry, with structural character, has been newly cared for, as in the larger buildings lately erected. We have regretted that the scenic

* See page 717, *ante*.

effect and that of individual structures were not duly reached, owing to neglect of plan in the streets and spaces, and to the absence of area adequate to the simple observation of the buildings. We have also adverted to an occasional error in the treatment of cornices, even where good effect by projection might otherwise, and safely, be obtained. We may mention on some other occasion points of treatment further, where skill is shown. But we may now remark that much ingenuity is displayed in getting sufficient light from the open areas in the midst of buildings; and the lantern lights to ground-floor rooms are usefully suggestive of variations in other cases very favourable to decorative effect. Actual effect also is attained in the staircases, (though confined these sometimes are,) by the treatment of the top-light, the goodness of the work, as in the stone steps and massive hand-rail, and by the candelabrum, or elegant standard-light which is placed as the newel.*

But what chiefly characterizes the architecture of the City is the now common use of stone, and with it not only elaboration, but greater study in details than ever seemed possible in imitative cement. Coloured materials are used, in some cases, in buildings in the main thoroughfares; but then sparingly. Polished red granite in some part of the lower story, or in shafts, is applied with best effect: tiles are used with skill, but any examples of their use are exceptional. It is doubtful whether colour should be used in exteriors of buildings otherwise of white stone, except most sparingly. Its tendency is to attract the eye from those features of the building in which colour is not used, as mouldings and ornaments, which may have been intended really as the leading forms. In brickwork, doubtless, greater use may be made of colour, without sacrifice; but recent attempts have not been very successful, and produce what Sir Charles Barry has well called a Tunbridge-ware-like appearance.

Both on the use of colour, and on the architecture in masonry, of the City buildings, we shall have other opportunities to offer some remarks that appear necessary to the completion of our subject.

* One internal court is covered with white porcelain tiles, elaborately cut to all breaks and projections.

SPECULATIONS PUBLISHED ON THE SEWAGE-DISINFECTION QUESTION.†

The case of the Clyde, as regards the sewage which it receives from the City of Glasgow, so far resembles that of the Thames and London, that the experiments or measures of remedy that may be adopted in the one case, are worthy of particular attention as regards the other. There is, moreover, this difference, that the Clyde is embanked, and without mud-banks,—in other words, it is in the condition which is partly relied on as a means of combatting the nuisance in London,—whilst the stench, notwithstanding, is great. We were aware that, some time back, prominent attention had been given at Glasgow to the question of *deodorizing*—as the phrase is, for want of an accurately descriptive word—as the means of attaining the object, that is to say, without the construction of intercepting sewers, themselves not absolutely certain cures or removers of the evil; indeed, it will be recollected that Mr. Bateman's evidence before the Committee of the House of Commons, touching this point, was noticed by us at the time.‡ We have since been looking hopefully for the information we were led to expect. The present Report, however, recently come to hand, dated in the same month as the evidence was given, is merely provisional, though it may be usefully referred to, to show the line of action being acted on at Glasgow, and respecting which we shall doubtless have to chronicle further results, bearing upon the case of London.

The Report first disposes of the question as to use of lime, alum-sludge, and other substances,—finding the processes not merely unremunerative commercially, but doubtful in operation as means of getting rid of the sewage—unless at ruinous cost. Dr. Anderson and Mr. Bateman "have no hesitation in asserting" that the problem of removing the valuable constituents after they have been largely diluted with water, does not admit of an *economic* solution." But they think, whilst there is "no prospect of a successful result" from any of the processes of precipitation as now proposed, "the idea that chemical agency cannot be usefully applied must not be hastily adopted," and "any engineering operations which would effectually remove the sewage from the river Clyde, would be so expensive that a considerable annual loss resulting from the chemical purification of the water would be considerably under the interest of the engineering outlay." None of the methods of deodorizing sewage appear to them to go to the root of the matter, because hampered with the condition of recovering the valuable matters, which renders necessary the application of some process at the sewer outlet.

For the reasons which led us to a similar conclusion in the case of London, they conclude that at least in all large towns where decomposition of the sewage before reaching the outlet, is possible, "deodorization" should take place in the sewers themselves. Theoretically, they seem to think, the perfection of such an arrangement would be to have each house supplied with a reservoir of some deodorizer. But since it is obvious that such a system could not be worked, they look to the nearest approach to it, the division of the city into districts, and convergence in each case to a point where the deodorizer could be thrown in. This, we may observe, need not involve the cesspool, or sump system: indeed, the object is the avoidance of any storage.

The most important consideration thus is as to the substance to be employed as disinfectant or deodorizer; and therefore the question in the hands of Dr. Anderson and Mr. Bateman, has reached a point identical with that at which it was left in our recent articles.* We were well aware at that time, of the claims put forth on behalf of the disinfectant of Dr. R. Angus Smith and Mr. M'Dougall, of Manchester; but were not satisfied on some points; and we have been left since in the same uncertainty. The powder, which is the only form of the disinfectant that we have had the chance of experimenting upon, is manifestly not adapted to the requirements. It would increase deposit in the sewers. There is difficulty, too, in satisfactorily experimenting with the powder; for, the smell of the carbolate immediately diffuses itself about the place where the powder is applied, and it is not easy to say from perceptible difference, whether the original stench has been got rid of. We will, therefore, leave the point as to the value of the disinfectant, in abeyance for some time longer. Judging from testimonials, and positive statements to us, the powder is well established, and has no need of our recommendation. Dr. Sanderson, medical officer of health for Paddington, stated last year that he had employed it, in bags suspended, for the disinfection of gullies, and at a cost of 1s. for each gully, the powder retaining its efficacy for six weeks at least. The proposal as to the sewage of towns, however, is to apply the disinfectant in the liquid form, or merely the sulphurous and carbolic acid—without the bases, lime and magnesia. If the disinfectant, by the sulphurous acid, destroys the noxious exhalations, and, by the carbolic acid, preserves the manure in a state fit for use, the only questions are as to the mechanical contrivance for application, and the cost. The former have been considered; and the inventors are but anxious for the opportunity to make a practical demonstration. As, however, we shall probably have to recur to the subject, we now merely state that we are in possession of their suggestions as to the application, the mode of which does not appear to involve any engineering difficulty. The point then left would be as to cost. This, for all London, the inventors have estimated at 13,000*l.* per annum.

Aware of the arguments in favour of the particular disinfectant of Dr. Smith and Mr. McDougall, Dr. Anderson and Mr. Bateman have had prepared for them in the course of this year a large quantity of the material, for the purpose of testing the process on a large scale. We shall probably be able to inform our readers shortly of the result. The statement now before us is that they were waiting till the Kelvin was in a state that would afford satisfactory proof of the effect that the agents would produce. They did not expect that any process could convert the Clyde into a pellucid stream.

After all, however, they are inclined to go much further, and to express belief that the principle of sweeping away the refuse of towns by abundance of water cannot be effectually carried out, and is radically wrong. They see that the imperfect success is the consequence of that system which renders individual precautions less a duty than they were under the older arrangement, and reverting to the "preventable contamination" which they hold should never be allowed to flow into the sewers, and should be utilized without the interfering difficulty of the copious dilution with water, they are of opinion that the existing closets are quite behind the age, and that had the ingenuity given to them, been given to the application of dry deodorizers, "the result, in a sanitary point of view, would have been quite as good, probably better," and the product might have been converted into a manure, to sell at about 3*l.* per ton.

The *conclusions* in their Report, however, do not seem to have been modified by any views of the kind just mentioned,—views which (although we now express no opinion on the subject) we need not say are held by some other authorities—amongst whom Mr. W. Bridges Adams is of opinion that fire rather than water might afford the effectual means of getting rid of *excreta*, and that perhaps we may gradually displace water-closets, and substitute oil-closets and fire retorts heated by gas jets.*

Experiments with floats in the Clyde, tended to results as to the very slow progress of sewage towards the sea, similar to those arrived at in the case of the Thames; and the reporters sum up their inquiry with the conclusions,—1st, that deodorizing by precipitation can be carried out by several processes, but that the outlay would be large, and without return; 2nd, that engineering works to carry the sewage to the lower part of the Clyde would be expensive and difficult, from the requirement as to very great distance; and 3rd, that the advisable plan would be the use of such a deodorizer as would not precipitate, and would admit of the sewage being run into the river without nuisance. The last plan, although possibly involving greater outlay than that estimated by Dr. Smith and Mr. M'Dougall, is that which they think is likely to be carried out at the smallest expense, and with best chance of return eventually.

The plan put forward by the writer of the second pamphlet consists of the collection of the excreta from each closet with as little water as possible, in a small vessel; afterwards collecting in underground vessels—one in the centre of a district—to be emptied periodically; and the final reception, in reservoirs, together with elaborate chemical means for obtaining valuable products, as sulphate of ammonia. The access of the excreta would be "carefully and *completely excluded from the sewers*," which would be "*kept for their legitimate and proper uses*." The closet apparatus includes the small vessel, under the pan, for the purpose of "*accumulating*" to a certain extent the *excreta*, and giving time for disintegration of the solids; and Dr. Letheby is quoted to show that, "under ordinary circumstances," the solids do "not ferment in less than three or four days." But we apprehend that if Dr. Letheby had been quoted further, doubt would have been thrown on the success of such an arrangement as that here proposed, and because the circumstances in that arrangement would not be the "ordinary" ones; but rather, the vessel would exist under circumstances like those in the sewers themselves, where noisome putrefaction in new sewage is at once set going by their previous condition. The author has given great attention to the chemical part of the question, but he does not satisfy us that in any part of his arrangements he would avoid nuisance.

† "Report on the Means of Deodorizing the Sewage of Glasgow, addressed to the Sanitary Committee of the Town Council." By Thomas Anderson, M.D. F.R.S.E. Regius Professor of Chemistry in the University of Glasgow, and John Frederic Bateman, C.E. 8vo. pp. 26, and Appendix, pp. 9. Glasgow (printed at the University Press), July, 1858.

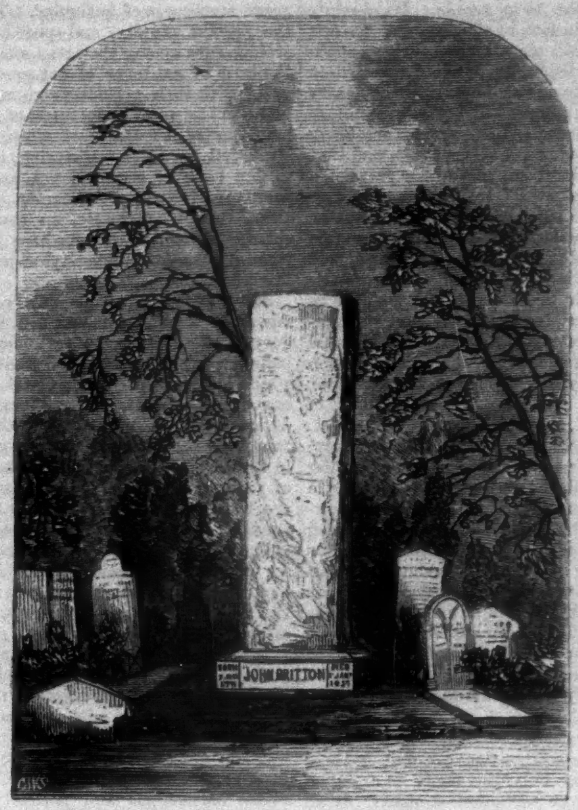
"Town Excreta; its Utilization. London Sewage, shall it be wasted? or economized? Being a Plan for the Collection and Treatment of the Fæcal Matter of Towns, for purifying the Sewers and Rivers, and removing the Chief Impurities which render them dangerous to the Health of Communities; with especial and immediate reference to the Metropolis, the River Thames, and the Board of Works' Main Drainage Scheme." By Charles F. O. Glassford, F.C.S. Manufacturing Chemist; late Manager of Pontifex and Wood's Chemical Works, London. 8vo. pp. 32. London: Effingham Wilson. 1858.

‡ See p. 476, *ante*.

* See page 525, *ante*; also pages 514, 494, and previous articles. See also the notice of Dr. Letheby's Report, page 648.

Exhibition of 1861.—A correspondent seems to have fallen into a mistake. If he will read our article again, he will see that the first step decided on by the Council of the Society of Arts is, as stated by their Chairman of Council, to inquire whether Her Majesty's Commissioners for the Exhibition of 1851 will themselves conduct the Exhibition of 1861.

* "Journal of the Society of Arts," April 24th, 1857.



The Grave-Stone of John Britton, Norwood Cemetery.

THE GRAVE-STONE OF JOHN BRITTON, NORWOOD CEMETERY.

IT will be remembered that the Royal Institute of British Architects have placed a brass, in memory of the late Mr. Britton, in Salisbury Cathedral, and that the Wilts Archæological Society have erected a memorial window in the church at the place of his birth, Kington St. Michael. His widow, nevertheless, naturally desired that the place of his interment, in Norwood Cemetery, should be appropriately marked out. Professor Hosking kindly gave his assistance, and a drawing was made, founded on a design submitted by Mr. Britton for a monument to Chatterton. Prudential reasons, however, induced Mrs. Britton to relinquish this idea, and Mr. Hosking suggested the erection of an upright stone, similar, in notion, to those at Stonehenge. This has been done, and the accompanying engraving represents its appearance.

The coffin was exhumed, and a structural foundation formed. Upon this is laid, at the level of the ground, a 6-inch York ledger, 5 feet square, and upon that is set a plinth of Bramley Fall stone, of the same superficies, and 8 or 10 inches thick. This plinth is wrought all round, and weathered at top from the base of the upright or monumental block, which is also of Bramley Fall stone, standing on the plinth, and tenon-joggled 4 inches into it. The monumental block is 3 feet 6 inches by 2 feet 4 inches, or thereabouts, at the base, 11 feet high, diminishing slightly on all sides, and is about 5 tons weight. The upright stone—the monument—is not wrought, but is as it was rent out of the quarry, with no mark of a tool upon it beyond that of the spalling-hammer, which was used to throw off some rougher irregularities. There is no other inscription than the dates of birth and death, cut into the base of the wrought plinth, nothing whatever on the upright block itself.

Some time after the work was commenced, Mrs. Britton received a communication from Mr. Cunnington, the honorary secretary of the Wilts Archæological Society, to the effect that the subscriptions towards the window were more than required for that purpose, and that, at a meeting of the committee, he had proposed that the surplus money should be offered for her acceptance. The sum was about 70*l.* and this Mrs. Britton accordingly appropriated to defray the expenses of the "Monument" at Norwood Cemetery.

MEMORIAL TO ROBERT OWEN.—A committee has been organized to raise some permanent memorial of the late Robert Owen.

ON SOME OF THE RELATIONS OF MODERN ARCHITECTURE TO THAT OF ANTIQUITY.*

As regards the relations in which the *uses* of modern architecture place it to that of antiquity, I will first observe, that nothing in the antique strikes me more than the general simplicity and unity to be observed as to typical form in the chief public buildings both of Classic and Middle-age antiquity. I mean not only as respects each age in itself, but of each to the others. Thus the Classic temple, with its internal colonnades and the method of lighting, most probably, suggested a few years ago by Mr. Fergusson, viz. an inward slope of roof to the base of the upper internal order, seems to have suggested the basilica, sometimes with two, and sometimes with four, internal colonnades.

The basilica converted into churches gave the rule for the general design of such structures, and the substitution of the arcaded for the colonnaded division of the interior marked the first step towards the familiar arrangement of aisle arcades. The pointed arch followed the semicircular, and the adoption of the cross as a typical plan preserved the principle, though it enriched its resources; and the most elaborate cathedral interior can thus, in my view, be traced back to its origin in one of the simplest of architectural types—the Classical temple. The adherence of the Mediæval designers to this arrangement of nave and aisle, of aisle arcades and clerestory lights, in buildings not ecclesiastical, is strikingly evidenced by the remains, as at Peterborough and Ely, of the hospitals attached to the cathedral establishments. That at Peterborough, the remains of which I examined last March, when deluded to add one to the crowd who in the vain hope of witnessing an annular eclipse flocked to the "Golden Fleece," as the Railway Hotel was aptly renamed by a friend of mine,—so much resembled a small but elaborate church that, without previous description or later explanation, for which I was indebted to Mr. E. Sharpe, it would most likely prove a subject of difficulty to any but a very practised antiquary. The supposed arrangement was that the patients occupied the aisles, and the attendant monks the nave, from which screens, placed like those in our cathedral choirs, divided the aisles, while a detached portion, in position resembling a chancel, but communicating with the nave only by a doorway, served the purpose of a chapel for the convalescents. Such unity of type in buildings of dissimilar uses proves certainly its ascertained applicability to various purposes; when, at the same time, as was certainly the case in the great ecclesiastical establishments of the Middle Ages, imposing effect was an object; and it is very remarkable in how many cases the mind recurs to something like this arrangement, as affording a simple and dignified means of spanning a large space, and obtaining ample light and air.

I do not believe that in this country a preference will ever grow up for any other arrangement for a place of worship on a great scale; and though we are not likely to build more cathedrals, on the scale of those existing, while the principles of the Reformation hold their ground, the reconstruction of decayed churches of great size and importance will of necessity be occasionally undertaken; and I do not myself think that any proof has been given that where due judgment is used in placing the preacher or reader, and fair pains taken on his part for proper elocution, any real difficulty exists in making a voice distinctly audible to 1,500 or 2,000 hearers.

The processional uses, however, to which the naves of cathedral and collegiate churches were put before the Reformation, find no parallel under our own forms, and it would be absurd to adhere to any specialty of plan, originating with an obsolete ritual; but unless the objections to this plan for an auditory be better established than heretofore, I cannot see why, in churches of large size, other arrangements should be sought, and I feel strongly the force of association in favour of the old one, and the high expediency of preserving distinctions as to structure between our Houses of God and secular lecture-halls.

In churches of smaller dimensions, and in special cases of larger ones, the roof in one span will prove desirable, and I do not myself think that the forms in which it can be applied, consistently with architectural and ecclesiastical effect, and good external and internal proportions, have by any means received the attention they deserve.

The great halls of the Mediæval palaces were certainly examples of this arrangement on often a vast scale, and that they were so has been urged as an argument against its use in churches, as secular in its associations; but, as I have said, I think that study would afford results consistent with all the characteristics our worship can demand.

The varied secular purposes of a public kind for which buildings are now demanded, seem beyond all comparison with either Classical or Mediæval antiquity. Palaces, temples, theatres, baths, and courts of law, almost include the whole of what could be esteemed public buildings even under the luxurious Romans; their bridges, aqueducts, harbours, and the like belonging to another class of public works.

In hospitals, colleges, schools, museums, libraries, scientific institutions, and the like, we cannot look for pattern, example, or precedent among the works of heathen antiquity, nor except to a limited extent among those of Middle Age Christian communities. I do not mean to say that, in any class of structures, reference to antique types as to the letter of their treatment is desirable; but as we have recorded for us, in the remains of ancient architecture, the results of long experience among bygone races of men, we are fools if we despise or disparage their study, on the false ground of the different circumstances of our own times, and the different standard of practical knowledge and skill which we now possess. The careful preservation of ancient remains of at all an important character marks every civilized and cultivated people, and the destruction of such, unless on the most urgent necessity, cannot be too severely deprecated. That one of the finest remains of Roman building in Spain, the bridge of Alcantara (a name, I believe, literally meaning "the bridge," in Arabic), has been destroyed during the present year, is to be greatly regretted, as in that class of works the noblest examples of construction, and the most signal instances of durability, have been left by the conquerors, of the world,—works which are most resembled in modern practice by those among the great viaducts of our railways in which their authors, happily, as I think, have adopted the semi-circular arch as their typical form.

I might enlarge, did the occasion serve, to almost any extent, on the subject of material, but will only further say that in the relation of our works and their details to the material used, much instruction is to be had from ancient remains. This is more particularly the case in the Pointed styles; and no greater mistake can easily be made than to adopt, in working materials of a rigid and resistant character, details which we find exemplified in old works where more tractable ones have been at command.

* See page 799, *ante*.

The impression of severe human labour is injurious to the effect of any structure. Grace, ease, moderate but not too laboured finish, repose, stability, dignity,—these are the qualities to be sought in architecture as an art, and many of them are common to all the fine arts; and in any of these, I, without any hesitation, assert that the idea once conveyed of a result produced by excessive labour, half the pleasure they can afford is negatived, and the highest effects are afforded in all by works which, however studied (and study, not labour, is the field of art), convey an impression of having been produced with comparative ease to the artist and his helpers. As to the relation in which we stand to the ancients in the practice of architecture as respects materials with which they were not conversant, it is undeniable that such bring, into all questions of adaptation of their styles, conditions which must, more or less, modify the form in which we adopt them, as the exclusive or predominant use of such materials in any structures is calculated to give them a character remote from all we have remaining of ancient works, whether that character be one genuinely architectural or otherwise, which is often a wide question.

Referring to what I have said as to plaster imitation of Gothic work, as bearing also on the folly of imitating, in that or some equally fragile material, the solid masses of ancient stonework as we find practised in the apparent cross entablatures of many so-called Classical interiors, I come to the now much discussed question of the adoption of iron as an integral and evident element in strictly architectural design.

A distinction must, in my opinion, be made here between what is, as I have said, strictly architecture and mere construction or engineering design; not to disparage the latter, but to separate it from considerations of artistic effect, with which, as concerned mainly with considerations of mechanical or physical utility, it has evidently little or no connection.

For introducing this topic, as touching a point on which our modern is related to antique practice, one of my reasons is, that I am of opinion that in the rare cases in which, as I think, simple adaptations of the Greek style can be at all successful, the difficulty of dealing with the interior, as respects the roof, has never been more happily met than in the use of cast iron in the Walhalla by Von Klenze; and since on the scale on which such adaptations can generally be accomplished the division of the interior or "cella" into three widths by the massive columns of an internal order would greatly cramp an apartment necessarily limited in comparison to the external dimensions of such buildings, such a treatment, where the style is appropriate, is well worthy of consideration for preserving that solidity of effect which belongs to the style in its general aspect. Cellular principals, consisting of tie-beams, backs, and uprights, of two separate castings of iron, bolted together at some distance apart, connected with diagonal bracing of the same on the soffit, and the spaces between the constructive lines filled in with allegorical figures and foliage, all evidently and confessedly metallic in treatment, and of such a massiveness of general appearance as to harmonize with the solidity of the supporting walls and anta, seem to me to exhibit much such a mode of treatment as the Greek architects would themselves have adopted had they had the use of cast iron, and aimed at covering in a space in one span, and preserving the effect of repose and stability proper to their practice.

In adapting to our modern practice in the Pointed styles the use of iron, two or three conditions, which I will name, seem to be essential to the preservation of architectural character. First,—That, whether cast or wrought, it should of course always appear as metal; and also, if for any purpose it is necessary to give it an ornamental surface-coating, such should be always of a kind appropriate to metal, and remote from all that characterizes stone or timber. The nature of iron, as regards strength and the forms and proportions which that nature dictates, will, if this rule be neglected, lead to impressions of mistreatment of whatever other material it may be made to resemble; a result most injurious to all consistency of architectural effect. Secondly,—Where used for adding strength, do not conceal it, whether cast or wrought; otherwise the parts of your structure so secretly assisted will, to a practised eye not informed of the fact of this support, appear weak, and an opportunity also be missed of treating in an original manner a material too often dealt with by architects as if fit only for treatment constructively by the ironfounder. Thirdly,—In using cast iron, do not give it the duty to perform usually intrusted to stone; and especially, I should say, avoid its use as piers to an arcade. Its absolute brittleness and subjection to the action of fire are, to my own mind, both objections to such an application; and, in addition, its entire disproportion in necessary mass to any stone-work it may carry in the form of an arcade will scarcely admit of harmonious or apparently stable proportions being adopted in their union. Rather use it, and that as I have said openly, to support minor parts of a building, as galleries, stairs, and the like; and as its strength in the form of brackets is often an important consideration, in all such aim at metallic treatment and freedom of design. In the support of timber roofs of large span, by dividing their bearing, at the line of the aisles for instance in churches, this material is applicable, and its relative proportion in respect of mass to what it would so support need not be inharmonious, and its union with the timber, by bracketing out in two, three, or four directions, will give the opportunity of very consistent and, to a great degree, rich effect. In wrought iron work the same will, I think, apply; and the examples we have in the hinges and similar works of the Middle Ages suggest the manner in which, with our more advanced constructive knowledge, the same material can be applied in assisting our ornamental carpentry. That this combination can be adopted too in works of Italian or of Classical character I have on other occasions stated my opinion; and I think it would be a very wholesome exercise of the ability of our student members to produce a design for a public hall of some kind of Italian or Grecian character, with an open timber roof visibly aided by wrought iron strapping.

Fine and original effects I am certain can be gained by such treatment, and I would venture to recommend the consideration, not only to those professedly pursuing only the study of architecture, but those more advanced students, as all should be, who are and perhaps have long been engaged in its practice.

I said that it was often a wide question whether the exclusive or dominant use of iron, as a building material, be consistent with true architectural effect. It may be presumed from my starting the question that I doubt this, which is the case. Repose and self-reliant stability are essentials to the character of fine architecture. Wrought iron, used alone, is certainly inimical to this result. The tied-up and merely restrained exercise of dynamical force, which the use of this material suggests, is very unlike the impression produced by the balanced and self-gravitating vault, or the massive and buttress-fenced timber roof. The forces at work in sound architecture should not be self-destructive, and in those I have last named they are not: mutual compression of parts tends to bind the whole together, and even decay, as I have before observed, will often not occasion ruin. The atmospheric action on iron is, we know, destructive of its strength: ties of wrought iron are subject to this, and are by degrees becoming weaker, while the outward thrust of the low-pitch roofs they are adapted to is constantly exercising its disintegrating power; and the knowledge of the action of these obvious forces meets the mind in its attempt to associate the idea of repose with this kind of structures. Cast iron, where used in a manner consistent with the self-securing action of well-opposed gravitation, as in arched bridges such as the Southwark, Sunderland, and others, is free from this effect, so destructive from the impression of durability, while still the fact of its suffering much more rapidly from atmospheric action than the more usually selected materials of external architecture remains as an element of effect injurious to architectural impressions. This comparison between the results of construction in wrought and in cast iron applies with great force to such structures as tubular bridges, like those over the Menai Straits and the river Conway; and, though the former has the great advantage, by its continuity of connection over all the piers between the two shores, of one length or bearing always balancing the next under its varying load, still the effect of gravitation is there destructive and not preservative, as would have been the case in the noble-arched bridge of cast-iron sections, with which Stephenson wished, at a much cheaper cost, to have spanned this well-known channel.

This character of self-constituted stability is, in my opinion, of so much importance in architectural design, when anything beyond temporary endurance is desired, that I must claim for it a foremost consideration among the most valuable resources for effect, and would remind you that it is the absolute possession of the quality that I thus plead for in modern works that has at once given one chief point of value to, and transmitted to our times, and secured for our study, so many great structures of antiquity. This quality is of the highest dignity, and special, or nearly so, to architecture among the arts; and small as can be the term of existence of our greatest works compared with such periods as we are led to contemplate in the great phenomena of the universe, as, for instance, by the vast meteor which has so lately left our skies, registering, as it were, a date in the book of eternity, yet immortality is the sublime attribute of humanity, and a character akin, though remotely, to that which should ennoble himself, must ever have its effect on man when not sunk in barbarity or debased by grovelling vice.

Many of the materials now commonly in use among us might be mentioned in the same category of those unknown to antiquity. Glass, for instance, as we have it, of a purity and on a scale which seems not to have been dreamt of by even our own ancestors. How should this affect our design in styles adapted from their days? Certainly we should endeavour to harmonise its use in the forms of utmost convenience to whatever of such styles we wish to appropriate. Numerous are the directions in which we might be led to consider the bearings of this question.

One only I will touch upon, viz. the use of glass for windows as distinguished into those to be looked out of, or those merely to afford light. In the former, belonging almost exclusively to domestic architecture, the large plates, sheets, or squares, which the manufacturer supplies at a moderate cost now, are fitly applied, and without interfering with the successful result of Pointed design when treated with judgment and reference to due character; and several instances could be quoted: one I will name,—Mr. Scott's new houses near Westminster Abbey, in which the application seems harmonious and perfectly consistent. I have seen instances in which the effect of this use of large glass was very offensive. In buildings in which light only, and not view, is the purpose of windows, the subdivision of the glass into much smaller parts seems in every respect rational and artistic. On the score of effect, the lozenge or quarry form prevalent in the Middle Ages approaches that of diaper, and affords excellent opportunity for actual application of diaper pattern, often the more desirable from the large size of the window openings in our churches and similar buildings, which eminently demand some such treatment, for the purpose of relief and division of the mass of light transmitted. The cost of repair in such glass is also very trifling, and unless where stained glass of good design, and not aiming to present a transparent imitation of opaque painting, can be afforded, I hold still by the quarry treatment of church glass. The baldness resulting from the forms used for glazing in the Renaissance churches and other buildings of the date, both in this country and others, is generally admitted; and whatever the cause, whether economy, or indifference, or evil example, it was insufficient; as, without incurring great cost by the use of large surfaces of glass, very agreeable effects could be obtained by division into well-considered geometrical patterns, something like those of Moorish trellis-work.

Beautiful patterns of this kind were adopted in Mr. Owen Jones's very original design for St. George's Hall, one of the most striking among all submitted; and I am glad to learn that a step in somewhat the same direction is to be made with respect to the windows of St. Paul's Cathedral, under the safe direction of its official surveyor, Mr. Penrose.

I had proposed to myself, when commencing this sketch, to say a word or two on the relations of modern architecture to antiquity as regards climate,—a very fruitful subject, and one open to large discussion. Space and time have forbidden my entering as I could have desired into this topic, but a very little I will venture upon. That must surely be but a poor architecture whose value and applicability are confined to the climatal region in which it originated or grew up. Egypt, Arabia, Greece, India, have all contributed to enrich our national resources in this respect, and where treated with artist-like feeling, most happily: when caricatured, or adopted pell-mell, without heed to the specialities of each country, the effect is ludicrous, and has been held up to contempt by abler pens than mine; but where graceful and effective arrangement of parts and characteristic conventionalities of detail are harmonised, as in some cases, with the forms necessary to our various applications of architecture, the art gains by such eclecticism, and I will instance the treatment of the square columns and their intervals at St. George's Hall, and the form of the cupola in the

new town-hall at Leeds; the first as pointing to Egypt, and the latter to Northern India, as suggestive respectively of their arrangement and outline. The materials applicable in different climates must influence (independently of the question of strength, which I have previously noticed) the manner in which an exotic style can be adapted; but it by no means follows that they make such adoption impossible. The Greek marbles would probably soon lose their surface in our changeful seasons and keen winters: we cannot, however, work in these, for other reasons than this; and, in our treatment of the style in which they prevail as its material exponent, we must adapt our details to our conditions, not only of material but of atmosphere; and I believe it by no means necessary for the preservation of what is desirable of Greek character in our designs in that manner that we should slavishly copy their mouldings, or the section of their enrichments; indeed, I am convinced that under our less brilliant sun and with our coarser surface of material we can scarcely take a surer course for losing the very character we profess to aim at. In like manner, our adoption of any characteristics of the Pointed styles of Southern Europe should be marked by a careful avoidance of whatever in detail or treatment can be held effective only under its native sky; and such I hold to be the introduction of varied marbles in panels, medallions, and the like. These will speedily lose their distinctive effect with us; and, having in our own and the Northern European styles the beautiful system of foliation and moulding with which we are all familiar, it seems a vain departure from good precedent to seek variety by recourse to so perishable a decoration.

Though I find my subject grow upon my hands, and I may say upon my mind, I must hasten to a conclusion for the present, while I feel tempted, were it only for my own satisfaction, to pursue it at some other time. I have ventured to support the now much-combated theory of the liberty of the architect to draw material for his designs from any source of sound supply, to many of which I have however not even alluded. I have endeavoured to point out, however slightly, some of the errors we are prone to in such a course, and some of the limits we should prescribe to ourselves; but I can never give my assent to any proposition for closing to our minds any of those noble fields of study which, albeit remote in character and dissimilar in climate from that in which we have to labour, are the great stores of ancient architectural lore, and among the noblest bequests of the sages of ancient art to us, who in this our day would fain, in our turn, leave some works of note to those who in time to come shall find their lot cast in the same path. H. P. Horner.

COMMERCIAL HOMICIDE AND ITS REMEDY.

Sir,—The question I promised to consider—"How the healthiness of buildings may be made their owners' business,"—takes us into a wider field. The registrar-general's advice to the opponents of capital punishment, to turn from the executions that so shock them—and of which last year witnessed thirteen,—to the lives sacrificed without trial or known fault, to the tune of 6,000 in one provincial town, is very fair. But when, after thus each quarter ringing some neat new change on the now familiar truism that of all his cyphers, so many alone representing the natural mortality, the rest are "preventable" deaths (as the last improvement in polite diction has it), he winds up with the equally familiar and constant sting in the tail, that these results are due to "wide-spread ignorance of the conditions," &c., &c., I doubt if this kind of "lecture to the working classes" be not far more disgusting and dangerous than to say bluntly, without this mocking at them, "We've got you, that is, the warren in which you must live and multiply, and will make the most of it, by you or your brood—'Use'em up and get more' (which no Legree was ever idiot enough to say), *we* say, because to get more of you costs nothing. So, quick!—'Get ye to your burdens' and your graves."

Ignorance!—Is it thought men are ignorant that they cannot live their natural span, fifty or twenty on a square perch? If the registrar would condescend to quote a word out of Mr. Ruskin's excellent Manchester lectures to the non-working classes—the "stern impossibility" among them, "of getting anything understood that requires a few minutes' fixed attention,"—he would be much nearer the mark than by all this talk of "wide-spread ignorance." There will be attention, though, some day. When all faces from the south to the north shall gather blackness, and the joints of reins be loosed, and knees smite one against the other, attention will be forced to all these things, and their reasons. And whenever there may be what is now so much talked of, a people's parliament, they will have attention little dreamt of now. In some proportion to the delay and the blood shed first, which will be much—ay, much, if it were only a week first,—much, not on battle-fields, but in the deadlier whited architectural block,—not by gun and barricade, but by poison-holding roof and cesspool,—so will be the attention bent on these things then, not to understand them, perhaps, but to take the wild justice of revenge, or what will be thought so.

It is now common to see parish Radicals (perhaps ignorantly inspired by designing rogues of opposite principles) making this subject ridiculous by calling the cypher of artificial deaths in some local return so many "murders" in that district and period.* This is one great dodge of the enemy, to suppress truth by getting it mixed with hyperbole. They are not "murders" in any sense the word bears in Scripture or English law. And yet there is much *architectural* homicide now, that I believe must strictly come under that blackest category, and cannot, consistently with the legal distinctions made in other modes of killing, be reduced to mere manslaughter. It is true Blackstone reduces to this all "unlawful killing of another without malice, either expressed or implied;" but a highwayman who shoots a traveller he never saw before, for his purse, surely does so without malice, express or implied? So far is he from desiring the death of A or B, that he would rather kill nobody; his object is not the injuring any one, but simply ours—the architect's or engineer's—to get money. Yet this is held murder; and so, we are told, is the *accidental* killing of a man by any act which is *malum in se*, as shooting at a tame fowl with intent to steal it; while, if it were but *malum prohibitum*, as shooting at a wild-fowl by an unlicensed person, it would not amount to murder. Now, in whatever way all this may be interpreted to bear on the selling as lozenge what the seller believes to be gypsum, and is really arsenic, and on the question, what possible difference the latter fact can make to the nature, name, or degree of the offence, our lawyers must not forget that precisely the same bearing will it obtain, in popular common sense, on the selling or letting for hire (for instance) as a *bridge*, what the sellers or lessors know to be a working and wearing out *machine*, consuming its substance invisibly, unfed and unfeedable, deprived of some by every passing load or swing, till a load comes that must, without warning, consume the last portion necessary to its own passage, and be destroyed. Do they say, the last passengers are a sacrifice to the general good of their predecessors? Then, pray, messieurs bridge-builders, who invested *you* with the sacrificial knife? Most public-spirited Druids, let us first suppose the work a public legacy, the bridge of some noble Appius or Fabricius, or some blessed toiling order of "Brethren of the Bridge"—have the brethren, then, a dispensation to immolate an unknown life to the public good? Has Appius or Fabricius any right to make Rome a present out of another citizen's blood? Poor heathens! they fancied they had none; otherwise, do you think they could not (in the nation that stretched awnings without prop over the Coliseum, and built the bronze and copper roofs of Antonine's baths, rivalling the Pantheon) have made suspension-bridges, ay, iron ones, as well as you? But Christian light eclipses their dim ethics, indeed! *Is* the foredoomed final load a sacrifice to the "public," after all, or to the original speculators' pockets? Compare the tolls on Waterloo, the costliest English bridge, and Hungerford or Chelsea, whichever may be the cheaper substitute for one, and you will see.

Most enlightened Christendom! if the money saved to the builders—I don't mean between these particular two cases (a monument of extravagant—however imbecile and effectless—pomp, and a simple convenience), but between what any company, when they bribe out of any ruler a bridge-building *privilegium*, are understood popularly to mean by the old-established word "bridge," a passive *way*, and what they afterwards construct and leave under that name, an active *machine* of rubbing-parts;—if this differential sum, I say, be in any less exact sense blood-money, than Iscariot's thirty pieces—if it be coined out of anything else than "innocent blood," I will thank the "successors" of that gentleman's colleagues to tell us of what.

* We allow our correspondent to have his say, even though it may seem, as in this case, directed against ourselves.

Or take, in place of this largest, the simplest possible case of the kind: What is the money saved on each coal-cellar of Chesham-place, by making a single stone do duty for vault, spandril-filling, and paving, but so many shillings coined out of the life and limb of those persons, born or unborn, who, treading on each slab, shall wear away the last particle necessary to its own and their support? Does the contractor, miserable dupe, think his business is over till after *this* transaction, and all accounts thereto appertaining, shall have passed the Great Surveyor's office?

Now, why am I, sir, if I only adopt a less modern and less fashionable mode of coining this sort of base money—a mode not peculiar to, or so characteristic of this age—one not drawing bills on futurity, or mortgaging our successors,—if I go a journey armed, and meeting with a fellow-traveller unarmed, who objects to assist me with his money or his life, I take both, why am I to be singled out for punishment? Is sauce for armed traveller never to be sauce for lozenge-dealer, nor sauce for bridge-dealer, house-dealer, or church-dealer? Why is it thus *infinitely* greater an offence, in passing through a public place like this world, to help myself at the expense of *one* present, than of *any* number of following passengers?—to injure *one*, than (for the same temporary self-help) to sow the place broadcast with traps, pitfalls, plagues, and pestilences, for those who follow; to be as "a madman that casteth firebrands, arrows, and death" to unknown ages; and, named or nameless, an abiding active curse after one's very dust is dissipated? nay, rather, with what we now know of the influence of *precedent* in architecture (and it is not a jot less blind, observe, in that called "engineering" than in any of the "Five Orders") to be a bane, by one's own works or those they influence, to the remotest generations; so that, while the world standeth, were it for ever and ever, mankind must pay in blood for the fact that in any past age, historic or forgotten, an ædile offender was born!

But, leaving these grossest architectural felonies (which can only be checked by penalties proportioned to those of any other), our business is with the lower and lowest degrees of ædile and other commercial homicide, that show themselves in the registrar's tables, that are implied in the terms "preventable" or "unnatural" (therefore *artificial*) mortality, and are such a partnership affair as to be utterly incapable of being fastened on any one offender or body. How can *they* be limited?

There is a code of some antiquity and celebrity in which I find legislation against a form of architectural homicide we should hardly, if at all, recognize as any offence, being far milder than such as I mean by the lowest forms:—"When thou buildest a new house, then thou shalt make a battlement for thy roof, that thou bring not blood upon thine house if any man shall fall from thence."—Deut. xxii. 8. It is rather curious that what is here called "bringing blood upon thine house" is not the doing or omitting anything in a way to be knowably injurious—not aught that *must* injure or shorten life, observe, but only an omission that, added to the victim's carelessness, *may* be the occasion of doing so,—the passive occasion, not active cause; for it is not the giving your accessible flats a sham battlement, but leaving them without any; and the possible occasion, at some time or other, not constantly, inevitably, and to all alike, as is the case (for instance) with anti-sanitary malformations.

However, let us see how the same code deals with the exact cases we are upon—deaths demonstrably by act of man, though it cannot be identified by whom, by how many, or with what degree of culpability between murder and pure accident, or, rather, between murder and the above unrecognized bringing of "blood upon thine house,"—for I take it, in our case all will allow that no known or definite neglect ever pointed out as conceivably affecting those registrar's figures is so venial as that battlement omission. Hear, then:—"If one be found slain in the land . . . lying in the field, and it be not known who hath slain him"—[nor whether by murder, manslaughter, chance-medley, excusable or justifiable homicide, all which degrees, observe, the Mosaic code distinguishes quite as nicely as ours,—nay, whether it be by modes even more innocent than "bringing blood upon thine house"—by pure accident, "as when a man goeth with his neighbour to hew wood, and his hand fetcheth a stroke with the axe, and the head slippeth from the helve, and smiteth his neighbour that he die,"—so that the ignorance here implied is strictly the same as ours in the case of the

Liverpool Registrar's 6,000]—"and it be not known who hath slain him; then thy elders and thy judges shall come forth, and they shall measure unto the cities which are round about him that is slain: and it shall be, that the city which is next unto the slain man, even the elders of that city shall take an heifer, . . . and the elders of that city shall bring down the heifer unto [two words uncertain] which is (*or* shall be) neither eared nor sown, and shall strike off the heifer's neck there in the ***: . . . and all the elders of that city that is next unto the slain man shall wash their hands over the heifer that is beheaded in the ***: and they shall answer and say, Our hands have not shed this blood, neither have our eyes seen it. Be merciful, O Lord, unto thy people Israel, whom thou hast redeemed, and lay not innocent blood unto thy people of Israel's charge. And the blood shall be forgiven them." *Them*, observe,—the nation or elders.

There seems to be much uncertainty about the words our Bible renders by "a rough valley,"—but no question that it was some portion of ground (and the word may be an areal measure, like *acre*) which was *henceforth* to be uncultivated. There is nothing to imply it was a desert before. Maimonides tell us the "309th negative precept" is, "Ne colatur neque seminetur in valle horridâ, *sc.* in quâ, propter ignotum homicidium, fuit decollata juvenca, sicut dicitur, *Deut.* xxi. 4. In quâ *non coletur, neque seretur.*" Now this "horrid valley," or horrid something, say "perch," would most naturally apply to the perch (or whatever it be) on which the body was found; but whether so or not, it was part of somebody's estate, and the owner was to forfeit the tillage of it for ever. Thus, then, two fines were exacted for the unnatural or preventable death: a heifer from the local authorities, and a piece of ground from somebody's land, in accordance with another peculiar maxim of that code, "For blood it defileth the *land:*" [not any other chattel, observe, as the weapon, but the landlord's *land*] "and the *land* cannot be cleansed of the blood that is shed therein but by the blood of him that shed it."—*Numb.* xxxiv. 33. So that, according to this code, (which some of our fathers supposed to have something divine in it), a landowner would appear to be bound *coroner* on his own estate! and if he cause or suffer, employ or let loose, any agent (say an outlay-paid animal called an architect)—to do on his land any work that knowably (however unknown) causes it to "eat up the inhabitants thereof," then, as long as that agent goes loose, the land, call it Bedfordbury, Belgravia, or what not, goes "defiled," and debited with that innocent blood; and if the noble owner die without catching and ridding the world of the manslayer, the animate or inanimate offender, his grace carries into eternity the burden of all that blood-stained land. What a load!—a bloody estate; heavier even than a stolen estate, of which a Dervish once said to a Khalif, "Before you complete the formalities on this poor man's field, will your majesty assist me to remove this sack of earth?"—"Willingly; but, O holy man, we cannot lift it!"—"Then how, O commander of the faithful, will your highness alone bear the whole field in That Day?"

And such are the burdens (if our fathers believed right) whereof some 30,000 Englishmen now resist the removal of any portion from their own heads!—resist the sharing with any more, the accountability for all the plagues of Britain!

Well; it will be shared among more, and whenever it is, the popular rulers, depend on it, however wicked their intentions, will be found to legislate far more like the enditer of those laws than parliaments have hitherto. For instance, do you think that for every one of these slain, "found" by the registrar "lying in the field" of his cyphered pages, the Treasury under such rule will not receive its *heifer's-worth*, as surely as ever those Levites did their heifer? Do you ask how? The machinery is ready made. First, let us remember that, beyond question, an early measure of such governors would be the transferring (as it is called) the burden of taxation back to the land. This would be done under the unholy idea of reprisals,—of the cheated having their turn to cheat their cheaters. Now we must stop, to show that this malice would be utterly futile,—that there would be no reprisals but in their fancy, for that, had there never been any cheating in the matter, justice would allow, and true economy *require* this very thing; that I and some 30,000 more are the sole 30,000 in this island from whom any taxes ought to be collected. "To be collected," observe, because in mistaking these words lies the root of a fallacy now working most awful mischief, viz., that to *collect tax from* such or such persons, is to *tax* them in particular.

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Let us consider, then, how, with our modern data, this all-superseding land-tax would probably be assessed. Would it be proportioned to acreage, to rent, to anybody's valuation, corn crops, or what?

To the crop of ARTIFICIAL DEATHS each registrar, in place of the materials for all that "zymotic," and other Greek-English jargon, will be directed only just to enter on whose ground each death took place; or, if in a public institution, from whose the deceased was brought there. When the returns are cast up, the number of *natural* deaths will be found thus:—Each of what are called the forty-four registration counties may fairly be held of equal natural salubrity throughout, if only North Lancashire be severed from South and united with Westmoreland (although Rutland, from its smallness, should be attached to Leicestershire); in each of these forty-three, then, that sub-district (there are 117 sub-districts in Middlesex) which has given in the average of ten years the lowest death-rate will have its rate in the last of those years applied to the whole population of the county, thus giving the natural deaths for that year and county, and this, deducted from its total actual deaths, leaves the artificial and taxable number. The extension of registration to Ireland will enable this number to be had for the whole kingdom. Then, the next year's estimates being agreed upon, the entire debate on ways and means is reduced to this:—"Mr. Speaker—The expenditure of £ so-and-so, being now agreed upon for 1860, and the return of taxable deaths in 1858 being so-and-so, it appears, on dividing the former by the latter, that the death-unit for the ensuing year's taxation will be so-and-so."

Now this "death-unit" being always (even at first, before the mortality begins to be checked) a sum large enough for division at least into thousandths, the natural death-rate for any estate's population will be reckoned to at least three decimals; so as to leave, when deducted from the actual deaths, a remainder with three decimals. And as no estate can pay tax in the year after a year in which no death thereon has been returned, whether it pays any after a death will depend on whether this has made the whole mortality *since the last payment* excessive. Take an instance: I have a freehold on which dwells a population of twenty; and the death-rate of the healthiest sub-district in the county, deduced from ten years, is 15·4 per 1,000—say it is found this year 15·5, next year 15·2, the next (being a cholera year) 17·1, and the next three years 14·8, 15·7, 14·9. Suppose my estate paid tax last year, and no death occurs on it for three years, but one in the fourth; the death-rates above taken for the natural one of the county, for those four years together, amount to 62·6 per 1,000, that is 1·252 per twenty persons, and my twenty having but one death, there is nothing to pay. In two years more another occurs. The natural aggregate for the six years has been 93·2 per 1,000, or 1·864 per twenty; the actual two make a mortality then, since last payment, excessive by 0·136 parts of a life, and the estate must pay 136 thousandths of the average death-unit appointed in the budgets of those six years. This infrequency and falling in a lump of the tax on very small estates (but always with ample notice, as a full year at least must intervene between any deaths and the operation of a budget founded on the annual return of them) would make small owners provident, and as interested in "social science" as large ones.

E. L. G.

IMPROVEMENTS OF PARIS.

THE quarter of the capital anciently called *La Cité*, near the cathedral church, for a long time preserved its sombre and old-fashioned character, and the old buildings there were of very inferior material, and the streets very narrow; but what has taken place here, as in many other quarters, namely, the widening and paving of the streets, the letting in light, the building houses with superior materials to the old ones, the construction of the quays, the supply of water and the planting of trees, have effaced from many parts its former dark and unhealthy aspect. The cathedral of Notre Dame from many points may be seen; but there are houses still standing too close to it. Its restoration is, and has been for years, an incessant occupation. Some say it can never be finished. There was, in the olden time, a fine spire, that surmounted the centre of the transept, which was taken down, or struck by lightning: another is now begun to be erected in its place. The new bridges afford an increased facility to the traffic of the population, and are ornaments to the Seine. The sculpture and architecture of the south façade of the Tuileries are being repaired and restored. The cements used by Government, here and in other works, are those of *Pouilly* and of *Moléme:* combined they produce most delicate sculptures, and in the restoration of the façade of that interesting building, the *Hôtel-de-Ville*, in 1835, they were employed with great success. The gardens of the Tuileries, by well-conceived designs and by well-directed labour, are quite metamorphosed: they have undergone a very superior change. The graceful vases and the copies of famous ancient statues, and statues by the most eminent French sculptors, have been better placed, are viewed to more advantage, and have been fixed on more elegant pedestals. Every one admires the newly-introduced *asphalte comprimé*, which is laid in such a perfect level, rolled, and of so smooth and glossy a surface, that it quite throws into the shade the former carriage-paving, though that was very good. The first specimen was executed in the road before the gates of the *Palais Royal*. The French continually show their passion for trees and avenues: the Exchange has been flanked with several large ones, which were transported, one at a time, from some neighbouring forest or place, where they could be spared for the streets of the city. There is now in course of erection a new bell-tower between *St. Germain l'Auxerrois*, to serve as one to that new church, and a new building, which causes a great sensation, and gives rise to much conversation. It is a sort of caricature of the style of its neighbour, *St. Germain*. It may find admirers among the lovers of novelty, but its beauty is injured by too great a display of ornaments, which are forced and glaring, and its architect seems to have determined to distinguish it by a coquetry of decoration. The too free and frequent use of ornament, and too great a number of details, often spoil French buildings, and take away from them all expression of energy. French buildings are generally distinguished, as a national characteristic, for beauty, but are often spoiled from abuse of ornament. Members of architecture, intended to be plain and unworked, in order to convey strength, and support a number of smaller mouldings, are seen cut up into a range of niches or flutes, and the massy breadth which that member ought to have is entirely frittered away. This is the capricious use, or rather excess, of French Renaissance. Many monuments of the end of the fifteenth and beginning of the sixteenth centuries, as well as of the present day, are disfigured by them. In the seventeenth century there was an architect, Openord, who corrupted the pure style of architecture by all kinds of ridiculous ornaments, which resembled nothing in nature, and were always ill-placed. They were named *rocailles* and *rococo*. This was equally bad, let us mention, as it was of an English architect to introduce in a nobleman's house at Windsor, as ornaments, stars and garters. Much more might be said on the works of public utility, and the embellishments which are now in progress in Paris; but even a few words written on the spot may be interesting to some of your readers.

F. L.

THE PONTIFICAL RAILWAY CARRIAGE.

THE GALVANO-PLASTIC PROCESS.

A PIECE of gutta-percha, softened by hot water, and the heat of the hands which knead it, takes readily the form of any relief-work desired to be reproduced. The extreme tenacity of its particles permits it to fill completely the most minute cavities; and, under the energetic force of a hydraulic press, no other substance with which we are acquainted receives so perfect an impression: rapidly obtaining consistency as it cools upon the model, faithfully preserving the most varied configurations, the mould is removed with facility owing to its elasticity. This mould, covered with an impalpable metallic dust, is plunged into a bath of a solution of sulphate of copper; and, on a galvanic current being brought into play between the solution and the metallic coating, a deposit of pure copper is the result. This is the galvano-plastic process, which has been applied with success to the decorations of the pontifical carriage. Fifteen days in the bath gives a thickness of about 2½ millimètres; the metal deposited being very solid, and remaining malleable; on quitting the mould the impress is so perfect that no retouching or chisellings, tedious as well as costly, which are indispensable to the best castings, are required. The lightness is extreme, since castings require from 3 to 10 millimètres in thickness. Up to the present time this process was only em-

ployed for the reproduction of small models; but the application of it that Mr. Christofle has just made to this carriage opens for the art an extensive field, without prejudice to the perfection of the work. In gold or silver the facility is equally remarkable with which these castings are now produced.

Mr. Trelat, the engineer, to whom the construction of this carriage was entrusted, in concert with Mr. Christofle, conceived the idea of applying this process to the decorations of this vast structure, and carried it out with complete success. We now describe the carriage. On the exterior, throughout, it is sheeted with copper plating, the sheets of which measure in many places 2m. 50c. in length, by 1 mètre wide. These panels are adorned with symbolical ornaments, in bold relief, and of exquisite workmanship. At the four corners stand griffins, with eagles' wings and lions' feet. The thickness of metal is throughout 2½ millimètres, and the details reflect credit upon the talent and precision of the artist. Had the works been cast in panels, there would have been required a nicety of adjustment, in the carrying out of which the original design might have suffered, and much time and money thrown away. Besides this, the weight would have been such as would render a similar carriage almost impracticable on a railway. This would have been, as it is calculated by the engineer, 5 tons more than the present weight. If wood had been used, the number of hands through which the various pieces would have to pass would have prevented the artist from carrying out his idea with that unity and harmony that the work presents. The "envelope" of copper, which is in its natural colour, gives to the structure a very noble appearance. Sufficiently varied by gilding, which indicates the principal details, this reigning tone is free from being monotonous.

The carriage is in three compartments. In front, an antechamber; in the middle, a saloon or throne-room for the Pontiff, surmounted by the tiara; at the rear, the sleeping apartment—not so high as the saloon, but richer than the antechamber in decoration. The saloon is adorned on the outside with three gilt heads, representing Faith, Martyrdom, and Truth. On the centre panel, which marks the place of the throne in the interior, are painted the arms of the Pontiff, with extreme richness. Beside the armorial bearings, there is a large window giving light to the saloon. Its lower part is ornamented with a copper standard of the cross; bunches of grapes, wheat-ears, emblems of the Eucharist, forming a rich group surrounded with scroll-work, &c. The tiara surmounting the carriage is bronze gilt, and encircled with gold and set with precious stones. Four heavy wreaths of laurel lie in graceful curves round the cushion on which the tiara rests. In front of the carriage is a terrace with a double set of steps.

The interior of the carriage, which in its kind has no precedent, is much more rich than the exterior. The colours of the silks, the velvets, and the paintings, vie with each other for pre-eminence. The paintings are by M. Gerome, with the exception of the figure of the Virgin, which was painted by M. Millet from the features of a peasant girl. The crucifix, in wood, is the work of M. Toussaint. The furniture of the saloon is carved wood gilt: that of the sleeping apartment is ebony incrusted with ivory. The Pic-Latina Railway Company (Rome to the Neapolitan frontier) presented the carriage to the Pope.

The galvano-plastic art has been suggested as available for the coppering of ships by the means of an enormous basin of solution of sulphate of copper;—thus, without nails or rivets, sheathing a whole vessel at once!

PROFESSOR WILLIS ON ST. EDWARD'S CHURCH, CAMBRIDGE.

CAMBRIDGE ARCHITECTURAL SOCIETY.

AT a meeting on the 25th ult., Professor Willis delivered a lecture on the "Architectural History of St. Edward's, Cambridge," now in progress of restoration, and showed in the course of his sketch that its history was intimately connected with that of some of the colleges. The workmanship of the decorated work was exceedingly good, and evidently executed by a first-rate architect. In style it assimilated itself to the buildings at Ely, and the original Chapel of St. Peter's College, now St. Mary the Less. The latter was dedicated in 1349, and was manifestly of Ely workmanship, as might be easily conceived from the connection between the college and the cathedral at that time. Professor Willis explained, by means of profile illustrations, the similarity between the capitals and pier arches of the churches of St. Mary the Less and St. Edward's, with those of Ely, and alluded to the establishment of schools of masons in the fourteenth century, at the period when Ely Cathedral was in course of erection under Prior Crandon and Alan de Walsingham. In this way he accounted for the superiority of St. Edward's to the generality of the parish churches of Cambridge: it was evidently not the work of a parish mason, but of first-rate architects, such as rich people, like the monks of Barnwell Abbey, would naturally employ. The professor then proceeded to avow his disbelief in the use of "mystic numbers in Mediæval architecture." It was, however, curious, he observed, that the system of erecting upon the plan of whole numbers had been observed in St. Edward's Church. He accounted for this by the conjecture that it was easier for a master to tell the workmen to make an arch so many feet high or so many feet broad—to make a thing twice the length of its breadth, and so on. Thus, for example, he found the piers of the nave 9 feet apart, all along, and the width of the church from wall to wall, just twice that distance; but, he believed, as he said before, that was merely a matter of convenience, and arose not from any mystic or symbolical notions. He then at some length disputed the theory of Mr. Kerrich that the whole system of the Gothic architecture was founded upon the *vesica piscis*. Mr. Kerrich, among other examples in proof of his theory, mentioned the arches of St. Edward's Church; but the lecturer, having measured these arches, found Mr. K.'s diagram entirely wrong. The result of his own investigations had led him to the conclusion that the real method of proportioning pointed arches consisted in fixing the centres from which the sides of the arches were struck at points which were determined by dividing the span line into three, four, or more equal parts. This view he confirmed by quotations and diagram from various authors and from a manuscript of the thirteenth century. There were of course arches not erected upon this principle, but he had found a great number that were, as for instance those of Jesus Chapel, Cherryhinton and Botolph Churches, as well as the arcade in St. Edward's; and it was an easy way of telling workmen the proportions of an arch. They did not, however, adopt the method like a mystic charm. The professor, alluding to the windows, observed that they were of two different kinds; and he described that the east window of the south aisle, looking into Peas Hill, was discovered by the removal of a house by the Improvement Commissioners a few years ago. It was a two-light, flowing decorated window of ordinary pattern. Until a few days since its lights were walled up. When the houses above referred to were removed, the window was smartened up by Roman cement by the parish plasterer. He of course knew nothing of tracery or Gothic details, and therefore restored the window according to his notion of making it a nondescript, or solecism, in architecture. But now that the two aisle walls have just been rebuilt, it was thought undesirable to refix the old sash windows in them: new windows were wanted. What was to be done? The parish, in their wisdom, thought it improper to be guided by an educated and properly-qualified architect, so the mason could devise nothing better than to copy the cement window; thus the *plasterer's blunder has been perpetuated in stone*. A drawing was exhibited, showing the ancient work and modern blunder, side by side. In the professor's opinion, amateur architects are only theoretical: they remind him of a young surgeon with his first patient in an hospital: in the one case, the building suffers irretrievably: in the other, the patient dies. Although he was glad to see this noble church being restored, he wished that the superintendence of its restoration had fallen into better hands.

THE FLOATING DERRICKS.—A brig called the *Lightning*, which was sunk about four months since off Erith, through collision, with nearly 300 tons of granite in her hold, has been raised by a small derrick, possessing a hoisting power of only 100 tons, and placed close in shore for unloading and repair. A platform and bulkhead fore and aft were placed within the wreck, by which considerable additional displacement was obtained with the aid of a pair of pumps. The steam hoisting gear was then set in motion, when the power of the derrick, increased by the rise of tide, succeeded in weighing the brig, and placed her in shore within four hours of starting. The wreck lay just off Erith Reach. Had not this serious obstruction to the navigation of the river been thus removed, it could only have been effected by the breaking up of the vessel.

THE DRINKING-FOUNTAIN MOVEMENT.

THE now rapid progress of this useful movement affords an excellent exemplification of the innate hopefulness of many a cause which may long have seemed a fitter subject for despair. For years did sanitary reformers urge the stubborn inertia of public opinion in favour of drainage and other important cognate subjects, and were almost in despair with the apparent callousness and indifference with which all their exhortations were received; yet all the time, the sluggish inertia was being gradually though imperceptibly absorbed by, and infused with, the force of the movement; and at last "it moves," was all of a sudden the surprised exclamation, as it were, of even the most sanguine. Such, too, has been the history and the fate of the minor movement on behalf of street or drinking fountains. Few years probably have passed since the *Builder* first appeared (and it is now at the end nearly of its sixteenth yearly volume), that this question has not been urged and re-urged in our columns, and apparently without avail; but the inertia was in gradual course of absorption into the visible movement; and now, almost suddenly, we have it not only pervading the whole country, but in more than one case, that of Manchester especially, we have an actual competition to supply the whole of a large city with street fountains. Such, from a letter in the *Manchester Guardian*, appears to be really the fact. In the City of London itself, also, some of the Sewers Commission are now for competing with Mr. Gurney in his offer made to the commission, which have already favourably discussed the subject.

The corporation of Salford (adjoining Manchester), have resolved to erect six public fountains in that borough. The mayor, Mr. Harvey, offered to bear the expense, but the corporation thought the public should pay for its own convenience, as there is power given for the erection of fountains by the Water-works Act of 1850. The fountains will be erected in the most public places, and will be more useful than those hitherto put up in Manchester and Liverpool; as, in addition to the usual supply of water for drinking purposes, the waste will run into a lower trough, out of which dogs (and we presume cattle, sheep, &c.) will be able to quench their thirst.

Meantime, as already stated, the movement is in fair progress in the metropolis itself. We hear that even the St. Pancras authorities are anxious, by a reconsideration of the subject, to remove the obloquy to which they have subjected themselves by their unaccountable rejection of Mr. Gurney's offer. The Paddington vestry have appointed a special committee to inquire and report, with a view to the erection of public drinking fountains in that district. Mr. Robert Richardson, C.E. we may here add, has collected 8*l.* 8s. towards the erection of a public drinking-fountain at Westminster, in the immediate locality of the "One Tun" Ragged School, at Perkin's-rents there, once a drinking resort of hosts of thieves, but recently put to a better purpose. Mr. B. Burleigh, C.E. too, has offered a filter, which he will fix for the use of this school itself. So the master, Mr. Wood informs us.

Brighton is about to be supplied with public drinking-fountains by the Rev. Mr. Drummond and the chairman and vice-chairman of the Brighton Water Company (Messrs. W. Blaber and G. Cheesman, jun.). The fountains would have been erected some weeks since but for the desire of Mr. Lockwood, the town-surveyor, who was consulted on the subject of the design, that they should be somewhat of a different character from that proposed by the donors. The water company have agreed in each case gratuitously to furnish the water, which is not to be obtained only by turning a valve or tap, but is to be constantly flowing.

At Bolton, Mr. Arthur Greg, of Eagley, cousin of Mr. Melly, of Liverpool, has promised to bear the cost of the erection of "two handsome granite fountains," providing the corporation will supply them with water free. Mr. Barlow, a local manufacturer, has offered a subscription towards the same object, and the mayor has also taken the matter up with spirit.

The Water Commission of Glasgow has agreed to erect thirty drinking-fountains in that city, at a charge of 3*l.* 3s. each. In a city such as Glasgow, which for years past has been so notorious for drunkenness amongst the lower classes, who flock there from Ireland and elsewhere, in thousands, this cannot but be a highly beneficial movement.

To those who may doubt whether such a movement as this will tend to diminish drunkenness, we would only say,—consider for a moment the fact that literally thousands quench their thirst in the

course of a single day at one only of the Liverpool fountains: can any sceptic be so credulous as to believe that all these thousands, were there no such fountain, would carry their avowed thirst past the pot-houses, and go home to tea or dinner as it might be with blood as cool and free of alcohol as by the quenching of their thirst at the fountain? We should like to see such a sceptic: he must be a curiosity in his way.

THE MATERIALS OF A MAN.

LECTURES AT SOUTH KENSINGTON MUSEUM.

In the course of the second of the series of lectures in course of delivery at the South Kensington Museum, on the 22nd ult. by Dr. Lankester, called, "Plants as the ultimate Source of Food to Man," the elementary composition of the human body was demonstrated, and the absolute quantities of the elements contained in it were exhibited on the table, with the exception of four,—oxygen, hydrogen, nitrogen, and *fluorine*. The three first could not be exhibited on account of their bulk; the last on account of its rarity.

A human body weighing 154 lbs. was stated to contain 111 lbs. of oxygen gas, which would occupy about 750 cubic feet; and 14 lbs. of hydrogen gas, which would occupy nearly 3,000 cubic feet of space: the nitrogen gas would occupy about 20 cubic feet. Amongst the other elements there were 21 lbs. of carbon, 1¼ lb. of phosphorus, 2 lbs. of the metal calcium, 1 oz. of sodium, 100 grains of iron, 150 grains of potassium, 10 grains of magnesium, and 1 grain of silicon.

These elements, when mixed together as they were in the human body, were represented by 111 lbs. of water, 15 lbs. of gelatine, 12 lbs. of fat, 8 lbs. of fibrine and albumen, 7 lbs. of phosphate of lime, and a variety of other salts. It was shown that these substances are supplied to man through the agency of plants, and that it is in the tissues of plants that the great chemical changes go on, which convert the inorganic elements into organic substances, fitted for the food of man and animals.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The third ordinary general meeting of the present session was held on Monday evening last, at 16, Grosvenor-street, Mr. Ashton, V.P. in the chair.

The minutes of the last meeting having been read and confirmed, Mr. C. C. Nelson (honorary secretary) said that among the donations announced on the last evening of meeting he had omitted to mention a copy of the Album of Villard de Honecourt, presented by Mr. H. B. Garling.

The thanks of the meeting were voted to the donors.

Mr. N. E. Stevens, of 173, Fenchurch-street, and Tunbridge Wells, was balloted for as a Fellow of the Institute; and Mr. Lewis H. Issac, of 2, Verulam-buildings, Gray's Inn, as an Associate.

Mr. Joseph Bonomi then proceeded to read a paper "On the Greek Canon of the Proportion of the Human Figure," quoted by Vitruvius. The paper was illustrated by some full-length diagrams of the human figure, and also a diagram with the additional divisions given by Leonardo da Vinci.

At the conclusion, the Chairman said the meeting was much indebted to Mr. Bonomi, and announced the willingness of that gentleman to answer any questions which the paper might suggest.

Mr. Digby Wyatt inquired how far the principle laid down by Vitruvius, as illustrated by the diagrams exhibited by Mr. Bonomi, corresponded with the proportion of the Egyptian figures?

Mr. Bonomi replied that there was a certain correspondence, and added that the Egyptians had arrived at a general degree of proportion, but not to perfection. Mr. Bonomi then exhibited two small Egyptian figures, which he said were at least two thousand years old. In one of these figures there was a representation of the growth which maintained the proportions of the infant in afterlife. All dwarfs, he stated, belonged to that quality of growth, and all giants. One of the figures represented the god Thor; and, although there was no inscription upon it, there could be no reasonable doubt but that it was of the antiquity he had mentioned.

Mr. John Bell observed that a good deal of difference was found among the Greek statues, not only in the width, but the length of the limbs. One of the thighs of the Theseus was 1¼ inch or 2 inches smaller than the other. This might have been done to make the statue not appear to project too much. We knew, however, that in practice, when we stood upon one leg, the joints became pressed together, and the limb became shorter than when in a pendant position. He thought this would be found to be the case even in the Apollo, and that the leg on which the figure stood was shorter than the other. It would also be found, he believed, that Lysippus made his figures taller, which was a proof of the decadence of art at that time; or, possibly the circumstance might have arisen from his having made so many statues of Alexander the Great, who was very short, and whose limbs he had to lengthen, in order that the figures might appear effective in their positions. Mr. Bonomi had referred to the difference of length produced in the arm by bending; but he (Mr. Bell) had been under the impression that when the limb was bent it did not lengthen both divisions of the arm.

Mr. Westmacott expressed his acknowledgements to Mr. Bonomi for sending him a copy of his pamphlet on the proportions of the human figure—a production which he esteemed very highly, and which he had recommended to many artists. With regard to the paper just read, which bore upon that pamphlet, he (Mr. Westmacott) was bound to say that, in his opinion, the theorizing of proportions might render sculpture too mechanical. The proportions as exhibited in the diagrams, and explained by Mr. Bonomi, were right, and they were the proportions of the bones more or less. The beauty of the antique statue arose from variety; but the bones were never seen in the antique. With regard to increased lengths, Mr. Bell was quite right. He (Mr. Westmacott) was not prepared to depend altogether upon the Apollo, as it was evidently a specimen from a bronze, which might have been bent. The extended leg being longer than the other was according to the laws of Nature; for, when the cartilages were loosened, the limb was drawn to a greater length than if the weight of the body rested upon it. They were all, no doubt, sufficiently acquainted with antique statues to know that they did not correspond with the true canon of the bones. In the British Museum specimens would be found of the Phideau period, the Praxiteletan period, and the Lysippus period. The latter might be distinguished by the smallness of the heads. Although Mr. Bonomi's remarks were extremely good, and although the figures modelled according to the plan illustrated in the diagrams must be correct, he never would believe that statues could be made perfect by merely following the canons of proportion. It was remarkable that although Polycletus had established a canon in art the expression was used that another was more harmonious (expressed by *numerus*) than Polycletus. Statues produced upon a geometrical principle only would never be beautiful works of art, although they might be correct. In his opinion, the genius of the artist was best exhibited by following Nature as his guide. A proof of the remarkable elegance to be derived from extended proportions could be seen by comparing the relievos found at Halicarnasus with the Athenian marbles. These were all the observations he had to offer, as, until he entered the room, he was not aware of the nature of the paper to be read.

Mr. E. O. Edwards inquired whether the canon of Vitruvius, and that laid down by Mr. Gibson (of which a diagram was exhibited) would apply to all nations, as Sir Charles Bell, in describing the works of art (portraits) which he saw at Rome, said he could easily distinguish those who were Roman, and that they were known by their square-built figures, or by what we should call "Dutch build." With regard to the difference between the length of limbs, he believed that when the figure (especially that of a young person) rested upon one leg only, that leg became shorter than the other.

Mr. Bonomi said, that in his diagrams he had not applied any scale of measurement to the leg upon which the body did not rest.

Mr. Jennings was of opinion that if sculptors attempted to imitate Greek statues in a slavish manner, they would not produce the effect they desired. There could be no doubt but that the Greeks were better formed men than the English, and that the Roman form, as compared with the Greek, was deteriorated. The reason the Greeks were better formed, and more beautiful, arose, in all probability, from the circumstance that they were engaged in occupations which tended to develope the whole figure. It was a matter of some difficulty to obtain at the present time that full and graceful development of the limbs which was so desirable in statues; but the Greeks had the advantage of studying the whole figure, and that as near perfection as could be. Leonardo da Vinci appeared to have studied the human form on sound principles. He looked not so much for beauty in the human face and form as for defects, so that he might avoid them. If we did the same we might arrive at perfection. Although it might be very desirable to have a canon to convey a correct idea of proportion, the great point was, to study the human figure independently of all canons. It seemed to him that the great object of the architect and the sculptor should be, not to copy anything by line and rule, but to arrive at correct principles by careful observation.

Mr. Digby Wyatt said it was a singular and interesting circumstance that it should be to an artist that they, as architects, were indebted for what was believed to be the sound canon on this subject. It is evident from the writings of Leonardo da Vinci that he looked upon the human structure as an edifice, and it would be to the advantage of architects to look to the human figure as a copy for their edification. It was also interesting to find that in all well-developed figures this general scale of proportion obtained universally, except in cases of degeneracy of race, or unhealthy occupations. It was most interesting to them as architects, in studying proportions, to observe the way in which, at different heights and distances, the sculptor was obliged to modify his figures in his treatment of proportions. A curious illustration of this was exhibited in the case of the mediæval sculptures at Wells. When he went to Wells to obtain casts for the Crystal Palace, the figures appeared to be all right; but when he got them down he found he could not use them as they then appeared. They were sixteen or seventeen heads high, and the casts had to be reduced by a head or two before they could be fixed in their position in the Mediæval Court. The sitting figures also, which appeared to hold their due proportions as placed in their original positions, had to be reduced. With regard to the canons of form, they were most valuable for study, and had been very clearly expressed by Mr. Bonomi. It did not appear to him (Mr. Wyatt) that because they should not follow canons exclusively, the study of those canons was of no value. It might not, perhaps, be desirable that every sculptor should have the same canon of proportions, but it was most essential that they should have a good canon. The great object to attain in the correct statue of a man, was to represent the largest, the strongest, the most athletic form within certain rules. The statue which embraced these would be the most correct. Then with respect to the canon of proportions in the human race, it should be borne in mind that there was great variety in human nature. In the African or negro for instance, the measurement from the elbow to the lower arm was longer than in the white man, and other differences might be observed in other races. The Greeks, however, founded their canons of proportion upon a very fine race, but it was probable that the best proportions in every history of the world would not be found to deviate much from one another. He did not think that the finer specimens of the English deviated much from the models which had been left us from the Greeks.

Mr. Smith reminded the meeting of what that great master of his art, Sir Joshua Reynolds, said, in his first discourses upon painting. Sir Joshua said,—"Nothing is a greater mistake than for an artist to suppose that rules are the fetters of genius: they are fetters only to the man of no genius."

Mr. Kerr remarked that Vitruvius appeared at length to be regarded by artists in his proper light. There could be no doubt that the Greek sculptors of that age started into a remarkable degree of intellectual development, and that it was impossible to dispute their claim for elegance of form and philosophical beauty. There could be no doubt that there were certain proportions fixed by nature, and that, if we looked at the figures of Vitruvius, especially in Plate No. 2, perfect symmetry would be found. But on looking at Plate No. 5, the same figure would be seen out of symmetry, but in a form more pleasing, by reason of its variety, yet having that "balance," without which there could be no real beauty. This was a principle which appeared to be forgotten by architects in the present day. They forgot that balance which was so essential to the production of a pleasing work of art. It was to be remarked that the human figure, however pleasing in variety, was not pleasing in contortion. Some of the figures produced by sculptors now-a-days were too like contortions. Where the eye preferred the human figure in variety, it beheld that beautiful balance which imparted so much grace to the whole, but which was so frequently

disregarded by artists. Mr. Gibson, in his diagram and canon, raised the question of "geometrical elevation," as co-incident with arithmetical proportion; but he (Mr. Kerr) confessed he could not see how a geometrical standard could be reduced into arithmetical proportions. For his own part, he considered Mr. Gibson's canon wrong and that of Vitruvius right; but if it were possible to reconcile the two canons, it would be found that Gibson's, if right, was right by its correspondence with that of Vitruvius.

Mr. Bonomi submitted that Vitruvius and Gibson coincided, as shown in diagram No. 2.

Mr. Digby Wyatt cautioned the meeting against being misled, and reminded them that all rules constituting geometrical figures were capable of arithmetical expression. Any figure conforming to geometrical law must agree with the expression of arithmetical annotation.

Mr. Baker said that the present lecture and discussion came very opportunely after the observations which had fallen from Mr. Scott at the last meeting with regard to the necessity of architects drawing figures according to geometrical proportions.

Mr. Kerr confessed that he could not understand the position laid down by Mr. Digby Wyatt, because all geometrical proportions were absolutely irreducible to arithmetical proportions.

Mr. Digby Wyatt, in explanation, repeated that all geometrical lines could be expressed by arithmetical figures.

Mr. Parris observed upon a fact apparently not generally known, that there were thirty-two bones, and neither more nor less, in all the divisions of the human body. Thus, there were thirty-two teeth, thirty-two spinal junctions, and so on. This, he submitted, proved the analogy that ought to exist in the construction of buildings, and that there was a standard of excellence to which the architect could always appeal. He had drawn from hundreds of lifeguards-men, but they were selected men, and so he believed it was with the Greek and Roman artists. He did not believe that all the Greeks and all the Romans were such handsome fellows as they were accounted. Take for instance the finest specimens of the human form in Lancashire and Cheshire, and he believed they would be found to agree with the finest models of the Greek sculptor. It struck him as curious that we appeared to lose sight of that which the Greeks regarded as of the utmost importance in their studies of the human figure, namely, the adaptation of the circumstances to the immediate object to be produced. If a Greek sculptor designed a warrior he would not for instance give him the legs of a boatman, nor would he give him the muscles of a gladiator or prize-fighter. And so on, in drawing athletes or other subjects, it would be seen that the ancient sculptors designed the component parts of the figure in perfect harmony with the idea to be realized. Every artist, according to his ability, should endeavour to represent the figure in the form most suited to its purpose when in life; and so in architecture, unless the building told its own story, it must be wrong in principle: whatever the proportions might be, the soul and poetry of the structure should be manifest to all beholders.

Mr. Charles Barry, in moving a vote of thanks to Mr. Bonomi for his excellent paper, expressed his satisfaction at the interesting discourse which it had elicited. In the practical application of it to themselves, as architects, he believed that most architects would agree that attention to sculpture in the abstract was not so prominent in their studies as it ought to be. They must also admit that there was some sort of analogy between the train of thought which should actuate the sculptor and the architect. In both professions there were canons which could not be disregarded without danger, but which, if always observed, would produce that which was beautiful and pleasing to the eye. To go the length of saying that the canons of sculptors and of architects should be exclusively the same, might perhaps be carrying the principle too far. But if they were to agree that there was a universal law of harmony that would be sufficient.

Mr. Hakewell seconded the motion, and in doing so observed that Vitruvius was indeed a great man, and that the discussion of that evening showed how worthy he was to fill the position he held in the estimation of the architects of the present day.

The motion having been carried by acclamation, Mr. Wyatt then announced that on the next night of meeting (the 13th inst.), a paper would be read by Mr. J. Bell, and would have reference to a kindred subject—the geometrical treatment of sculpture.

MR. S. C. HALL'S "AUTHORS OF THE AGE."

On Wednesday evening Mr. Carter Hall read, to a circle of his friends, a selection from the two lectures descriptive of literary men and women of the epoch, to which we have already briefly alluded. By a few graphic and forcible touches, an anecdote, and a reflection, he brought before his audience a galaxy of stars, and held his listeners for two hours without any desire to move, smiling at the quaintnesses of Hogg, glowing and excited by an account and defence of L. E. L., and almost weeping by the death-bed of him who sang the "Song of the Shirt"—Thomas Moore (for whom Mr. Hall's admiration is intense), Miss Opie, Miss Edgeworth, Southey, Allan Cunningham, Hook, Ebenezer Elliott, Professor Wilson, Hannah Moore, and Wordsworth, were made visible to the mind's eye; and though opinions of course will differ in some cases as to his verdict, all will admire the clearness with which the facts are stated, and the eloquence of the summing up. The audience, though small and friendly, was a critical one, and Mr. Hall must have felt, in more than satisfying them, as it was evident he did, perfectly assured as to the reception his lectures will find out of doors. We hope, therefore, soon to hear that arrangements have been made to enable the public to enjoy these memories of departed great ones, who have bequeathed to us the rich fruitage of their lives.

THE EXETER DIOCESAN ARCHITECTURAL SOCIETY.

This society held its Quarterly Meeting in the College Hall in that city, on Thursday, November 25th. The Venerable Archdeacon Bartholomew having taken the chair, the report of the Society was read by Lieut.-Colonel Harding, describing several works of church restoration recently carried out in the diocese; and alluding to the resolution adopted some months since of illustrating good examples of ancient domestic architecture, one of which subjects, the Manor House, near Gifford, with its remarkable hall roof, was in progress for the annual volume of transactions.

The Rev. J. B. Hughes then read a paper on Huntsham Church, restored under the direction of the late Mr. A. H. D. Troyte, which was followed by an account of the Manor House, Holcombe Court, and Church of Holcombe Rogus, Devon, by Mr. E. Ashworth, architect. This Elizabethan mansion was in great part built by Sir R. Bluett, in Henry VII.'s time. It contains a hall 23 feet by 44 feet 6 inches, with a "long gallery" over, and a fine porch tower. The paper was illustrated with drawings of many of the Tudor and Elizabethan features of the building.

INSTITUTION OF CIVIL ENGINEERS.

On November 23, Mr. Joseph Locke, M.P. president, in the chair, the paper read was "On the Successful Working, by Locomotive Power, over Gradients of 1 in 17, and Curves of 300 feet radius, on Inclines in America," by Mr. T. S. Isaac.

It was stated, that the road which had decidedly taken the lead in the United States, in the application of locomotive power to steep gradients, and had been generally the pioneer of improvements, was that extending from Baltimore, on the Chesapeake Bay, to Wheeling on the Ohio River, a distance of 380 miles, through a region of considerable difficulties, especially in the various ranges of the Alleghany Mountains. This company was incorporated in 1827, and a portion of the road was opened in May, 1830, but it was not until 1851, or three years previous to the opening of the Sömmering incline, that the great incline over the main range of the Alleghanies was completed, and worked by locomotives. This latter had an inclination of 1 in 45½ for eleven continuous miles; and, after winding amongst the summits of the mountains for twenty miles, it descended, on the western side, with an inclination of 1 in 45½ for nine continuous miles. The passage of this mountain-chain involved altogether sixty miles of railway, twenty miles of which had a gradient of 1 in 45½, and nine miles of 1 in 50, both worked by locomotive power, at a speed of from fifteen to twenty miles per hour for passenger trains, and from ten to fifteen miles per hour for goods trains.

Steep gradients and sharp curves had since been adopted on the Virginia Central Railroad, on a more extended scale, and had been in successful operation for upwards of four years. The Mountain Top incline on this road crossed the Blue Ridge Mountains, at Rock Fish Gap, in Virginia. It was four miles and one-third long, with a ruling gradient of 1 in 18·87.

FLEET VALLEY RAILWAY.

The proposed great station in the City has been entitled, "The Central City *Terminus*." May the word "terminus" be dropped for ever! I thought the whole scheme was meant to remedy the evil of termini, with the consequent breaks in communication. To be of real worth—to meet with favour and success, this Fleet Valley line must, from the *outset*, be made the medium of uniting all the railways: no piecemeal work here. To bring it down as the Great Trunk from King's-cross to Farringdon-market, is to "break the neck" of the difficulty: between Farringdon-market and Waterloo Station comes the only gap to be filled up to render the union complete.

To explain this definitely, I must detain you awhile "over the water:" owing to the construction of the more distant suburban lines, "the Waterloo Extension" can now absorb much more traffic than it did; but it lacketh one thing to really deserve the title of "trunk:" this is, connection with the North Kent system *viâ* Newington and Lock's-fields to the Bricklayers' Arms branch,—a plan of the South-Eastern Company which has existed too long on paper.

Only view some of its advantages. The crossing of multitudinous lines in order to their progress in common westward is already provided for near the Rotherhithe New-road, and that with a degree of safety which could not be near London-bridge. Lock's-fields will be found comparatively cheap property,—and still more the open grounds at Newington-butts, a station at which would be a great boon, if only to keep clear the over-crowded Borough. I may add, this (partly-made) line abolishes all pretext for ruinous expense in traversing Southwark with railways.

The whole of the southern lines being thus united at Waterloo Station, might thence proceed (the distance is short, and through "back-slum" neighbourhoods), to the Thames, crossing direct (leaving Bennett-street on the east), to the Middlesex shore, and on through the centre of Salisbury-square to Farringdon Station.

We should thus leave untouched Blackfriars-road, Bridge-street, Farringdon-street, with their frontage property; Christ Church, the City Gas Works, Bridewell, and St. Bride's. As to crossing Fleet-street, might not that be effected as well *under* as over, and then rise gradually from Salisbury-square to the Thames?

If more station accommodation be requisite, how easily and inexpensively might it be won from the river (very convenient for goods and merchandise), taking the space between the projected bridge and Blackfriars-bridge, and making the successor to that ruin subserve and harmonise with the whole.

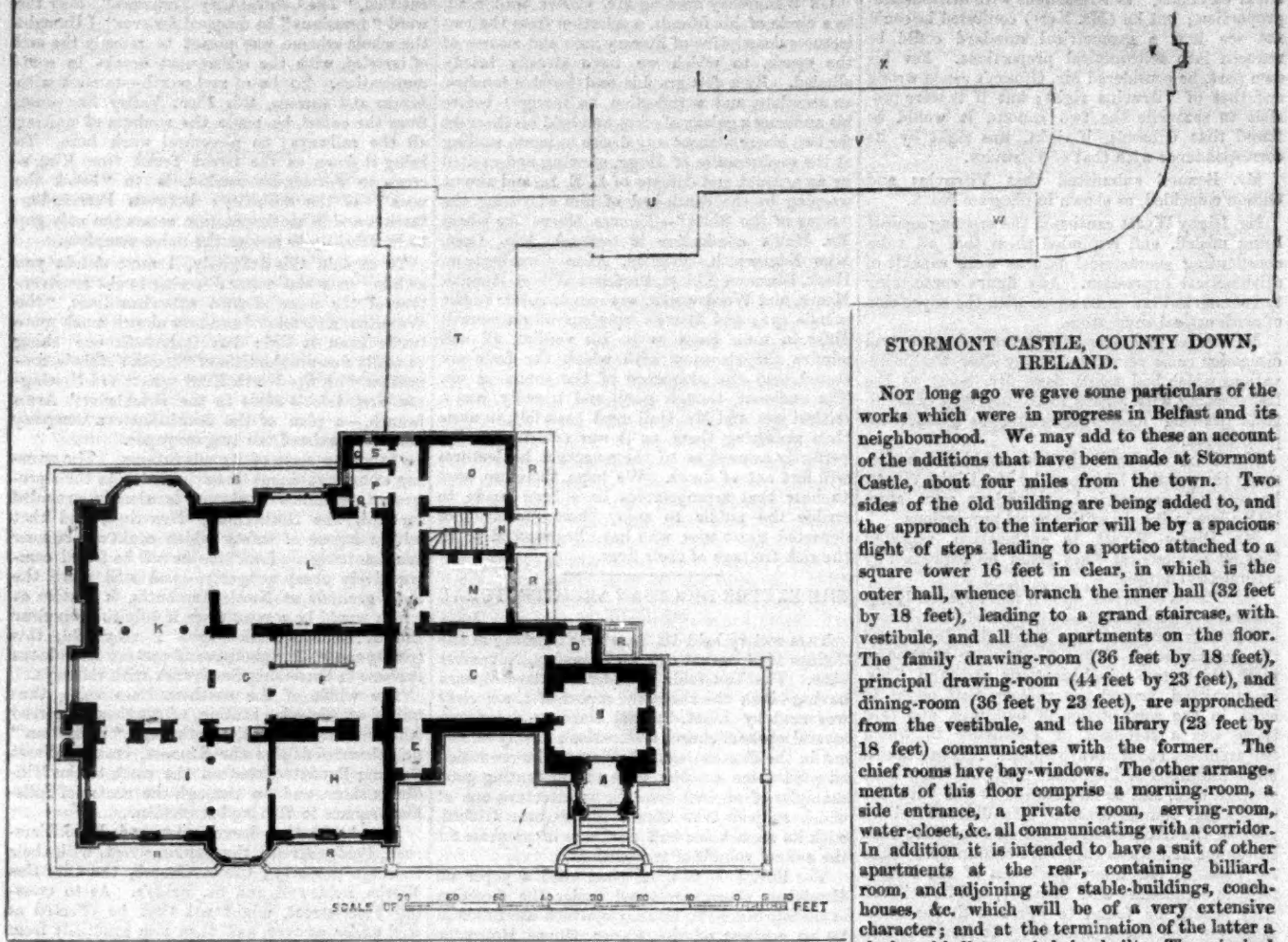
To this great work, which I would style "The London Main Junction," all other metropolitan railway projects, and bridge and street ones too, should be made to bow: for it there can be no substitute: it is of national importance. I, for one, would not mind being taxed towards it.

As closely allied with my principal subject, I cannot but point attention to the North London Railway. On this omnibus line, what with passengers and what with luggage (for which latter it was originally meant), the limits of safety have been reached; even as in the Lilliputian Station at Fenchurch-street. I am the more bold to propose a remedy, as the commencement of it already exists in the South Hampstead Junction Railway, which relieves the North-Western from Willesden to Camden-town, and which might equally relieve the North London by a direct extension from Kentish-town to the North-Eastern, near Upper Clapton, so reaching Stratford, the docks, &c. Several districts, sighing for railway accommodation, would at once have it: all the northern lines would be efficiently united; and, in particular, the course of the North-Eastern, *viâ* the Great Northern, would be pretty direct to the Central City Station.

SPEEDWELL.

The New Whittington Club, Strand.—The opening of the new Whittington Club and Metropolitan Athenæum, as it is styled, was celebrated on Tuesday night by a ball, which went off with great spirit. The new building, which is on the site of the old Crown and Anchor Tavern, was erected by Messrs. Holland and Harmer, under the superintendence of Mr. Charles Freeman, architect. On the ground floor of the institution are offices, a spacious reading-room, dining and smoking-rooms. The first floor is occupied by dressing and "class" rooms, and on the second floor are other class-rooms, a drawing-room, and the great hall. We shall take an opportunity to speak of it.

PLAN OF STORMONT CASTLE, COUNTY DOWN, IRELAND.



STORMONT CASTLE, COUNTY DOWN, IRELAND.

Not long ago we gave some particulars of the works which were in progress in Belfast and its neighbourhood. We may add to these an account of the additions that have been made at Stormont Castle, about four miles from the town. Two sides of the old building are being added to, and the approach to the interior will be by a spacious flight of steps leading to a portico attached to a square tower 16 feet in clear, in which is the outer hall, whence branch the inner hall (32 feet by 18 feet), leading to a grand staircase, with vestibule, and all the apartments on the floor. The family drawing-room (36 feet by 18 feet), principal drawing-room (44 feet by 23 feet), and dining-room (36 feet by 23 feet), are approached from the vestibule, and the library (23 feet by 18 feet) communicates with the former. The chief rooms have bay-windows. The other arrangements of this floor comprise a morning-room, a side entrance, a private room, serving-room, water-closet, &c. all communicating with a corridor. In addition it is intended to have a suit of other apartments at the rear, containing billiard-room, and adjoining the stable-buildings, coach-houses, &c. which will be of a very extensive character; and at the termination of the latter a clock and bell-tower is being built. The principal front of the main building has a central gabled projection with an oriel window carried up two stories; and cut stone piers are introduced at the quoins, from which rise corbelled projecting turrets terminating with high-pitched roofs of conical outline, and finished by vanes. Receding from the south-east angle some 10 feet is a square turret carried up higher than the battlemented parapet of houses and roofed in ogee form, with a vane; and parallel with the same but at a distance of some 20 feet is the principal tower, with battered basement, turreted angles, and crenellated parapet, and connected to main building by the inner hall, which is only carried up one story in height. This tower is ascended by a flight of steps formed in an external turret carried up to a greater altitude than the tower itself. The vestibule off the grand staircase is lighted from above, and on the upper floor are open arches with balustrades, through which light is admitted into the passages which communicate with the bed-rooms, boudoirs, &c. on the floor. The floors of the principal rooms will be laid in Swiss parquetterie. The whole building is of free-stone of yellowish grey colour, built in random ashlar, scappled on face, but with horizontal beds and vertical joints. The dressings are chiselled. Quoins, window-jambs, &c. are flush, not raised.

The old portion of the building has been cased with free-stone, with dressings to correspond with the rest.

Mr. Thomas Turner, of Belfast, is the architect, and Mr. John Lowry the contractor. The expenditure by present contractor will be about 10,000*l*.

REFERENCES.

A. Porch.	N. Side entrance.
B. Outer hall.	O. Own room.
C. Inner hall.	P. Servants' room.
D. Stairs.	Q. Lifts.
E. Hats and coats.	R. Areas.
F. Staircase.	S. Water-closet.
G. Vestibule.	T. Portion to be built.
H. Library.	U. Billiard-room.
I. Family drawing-room.	V. Coach-houses already built.
K. Principal drawing-room.	W. Clock and bell-tower being built.
L. Dining-room.	X. Stable-yard.
M. Morning-room.	Y. Gate.

PAYMENT OF MEDIÆVAL ARCHITECTS.

Will "E. L. G." be so good as to inform me of the authority for the statement made by him, on p. 804, "That the architect of Villard's time was paid a per-centage on what he brought in, not what he laid out?" Being interested in the early history of English architecture and architects, the reply will no doubt be of much service in my future researches, not having myself met with the slightest hint of a per-centage at so early a period. In fact, I think "E. L. G." must be wrong somewhere, for here he is praising up the per-centage system, when just above he is condemning it tooth and nail. Hitherto I have only learnt that the king's surveyor, or "surveyor of the royal works," or, as sometimes called, "clerk of the king's works," was paid by the *day*, generally about two shillings of the money of the time (equal to about 700*l*. a year in present money), with allowances for a clerk and carriage expenses. What he did for "his wages" I do not know; the MSS. of the *Cottonian Libreree* being silent on that point. I should be glad, too, if he will give his authority for stating that the architect of Villard's time was "commonly a monk or an ecclesiastic." We know very little of the English architects of the Mediæval period, considering the immense number of buildings erected, — who they were, and how they were educated. Much has at various times been conjectured respecting them, and most of these conjectures are now accepted as facts. "E. L. G.'s" replies will, therefore, be gladly received, and I shall feel myself greatly obliged. I do not say anything about the mode of payment described in the succeeding paragraph of his postscript, as I presume it is simply a joke.

We must not, I consider, be in too great a hurry to accept Villard as an architect. There is nothing to prove it on the vellum pages, and it seems to me that the badly-drawn architecture would go far to prove the contrary; whilst the better-drawn figures, &c. would tend to prove him to have been only a man of good education, making notes on his travels of what interested himself at the moment, and altering it at the time if it did not please. Perhaps the architectural suggestions were for his friend Corbie, whom he names. We must wait and see what the English translators will make of his interesting volume. Had he been an architect, I think he would have been likely to have given some of those mysteries of design which, we are so often told, enabled the Mediæval architects to produce their wonderful structures. Something of the kind is adopted in his figures: the architecture, however, is perfectly free from it. Is the geometrical system at fault? or could he have been afraid of committing himself,—telling the secrets of the craft?

Wyatt Papworth.

THE NEW FOREIGN OFFICE.

Our readers, who are acquainted with the proceedings and report of the late Parliamentary Committee on Public Offices, will not be surprised to hear that the erection of the New Foreign Office has been entrusted by the Board of Works to Mr. G. G. Scott, and that the Lords of the Treasury have concurred in that appointment, subject, of course, to future confirmation by Parliament. Mr. Scott will accordingly proceed, after communication with the authorities at the Foreign Office, to remodel his design according to the official information thus afforded, and agreeably to the suggestion of the Committee of the House of Commons that the New Foreign Office might be so placed as to range symmetrically with any other public offices, in accordance with the block plan of M. Crepinet, which might be required from time to time. It has also been determined, we understand, so to arrange the works as to leave the present Foreign Office standing till such portion of the new building as is absolutely necessary for the immediate occupation of the department is ready to receive it.

On the score of expense it has been resolved to relinquish the erection of an official residence with an extensive suite of reception-rooms originally proposed.

A view of one part of Mr. Scott's design, as originally submitted, will be found in our last volume (xv.), p. 495, with some statements by the architect; and, on an earlier page (382) in the same volume, some descriptive particulars. Several letters on the subject of the appointment are before us, but we prefer allowing their writers time for consideration.

STORMONT CASTLE, COUNTY DOWN, IRELAND.—MR. THOMAS TURNER, ARCHITECT.

THE LIVERPOOL ARCHITECTURAL SOCIETY.

AT a meeting of this society, held on Wednesday, the 17th ult. Mr. Chantrell, in the chair, Mr. James K. Colling read a paper on "The Application of Natural Foliage to Architecture." Mr. Colling, who illustrated his suggestions by ninety diagrams and sketches, beautifully executed, commenced his paper by expressing his regret that at the present time there should be such strong party feeling raging in respect to the different styles in architecture; persons now ranged themselves either upon the side of the Goths or the Greeks—Classic against Gothic; but without going into the merits of either side, he merely premised that, in the observations he was about to make, he wished to view foliated ornament and architectural enrichment in the broadest and most comprehensive light,—to avoid as much as possible the clashing of any styles, or the advocating of one more than another. It was true that ornament received a certain colouring or conventional treatment, according to the style in which it might be used; but the principles and leading lines should be the same in all. The anatomy of the leaves should be alike in every style, although the leaves themselves might be tinged by its peculiarities. All that they could see most to admire in the foliage of the Classic or Gothic eras could be clearly traced to natural forms and natural arrangements; and, by studying nature, the fountain head of all true design, had been hitherto followed, they were enabled to improve or vary their ideas, and to take advantage of the other beauties which were sure to spring up before the mind of the diligent student. His remarks were intended to apply to Classic foliage quite as much as to Gothic, and he considered there was far greater room for improvement in modern Classic foliage than in modern Gothic. They went on year after year, copying and recopying the old conventional forms of Classic foliage, without attempting or seeming to wish for any change or improvement. They were too much in the habit of looking upon Greek foliage as perfection, and had been contented in merely copying, or at most in re-combining and re-arranging. If nature were more studied and more adapted to classical architecture, a vast field of varied and elegant foliated decoration would be soon opened up. They should also at all times take such foliage as was characteristic and belonging to our climate, as the oak, the ivy, the thorn, the maple, and all the beautiful and lowly weeds and plants of our hedges and gardens. In our indigenous flora there was a vast variety and wonderful beauty—beauty of form, beauty of light and shade, and beauty of colour. The forms of leaves alone was in itself a complete and delightful study; yet this was but one portion of the vast page which was opened to us: there was the study of flowers — some of the most lovely works of our Creator, their form and arrangement, their structure and colour; the light and shade upon leaves, the mouldings as it were of their upper and lower sides, the ramification of their veins, which was very different in different leaves; the manner of leaves in growing, their colour and ever varying hues, and their harmony with the flowers which grow among them: all these formed subjects the study and contemplation of which would be of infinite value to the architect or decorator. His mind would be expanded, his taste refined, and the beauty of nature would be infused into his works. Nothing, however, was further from his (Mr. Colling's) intention than to advocate a literal translation of natural leaves and flowers for the purposes of architecture. Natural foliage, however well rendered or cunningly carved, if merely copied from nature, without being translated by the mind of the artist, would fail entirely in its purpose, and would be less effective than the literal copyism of the foliage from any of our architectural precedents. This could not be too strongly insisted upon, because, if they told their artists that they should not copy from old examples, but simply say, as it often has been said, that they should "go to nature," they would soon be so deluged with literal representations of natural foliage that this system of copyism would become worse than the present. In the rendering of natural into architectural foliage there must be study and thought, life and beauty. It must be the creation of the artist's mind, working upon nature's principles and nature's laws. Flowers and leaves, although so wonderfully various, are, to a remarkable degree, geometrical and regular in their forms and structure. Yet there exists such an extraordinary freedom, that the hard forms of geometry are concealed with an art which alone marks the hand of the Divine Creator and Designer. It is this apparent irregularity and seeming negligence, combined with harmonious colouring and strictly geometrical formation, which gives the natural vegetation that charm which so delights us. It is this missing, in modern carving, of the geometrical and regular as a groundwork or skeleton, neglecting nature's first principles and only aiming at its irregularity, that causes the failure of our otherwise beautiful carving. If we do not commence upon a proper foundation, it is of no use arriving at perfection in the art of carving. We are aiming at the shadow and neglecting the substance, producing leaves and flowers before we have arranged the branches. Every flower and every leaf is arranged with such precision and regularity, blended with such marvellous irregularity, that no two flowers or leaves can be found precisely alike; yet all are formed in the most simple and regular manner.

ANTWERP BOURSE COMPETITION.

THE administration of the town of Antwerp have advertised for designs for a new Exchange, to be built in the place of that recently destroyed by fire, and on the same spot, avoiding, however, any encroachments on the neighbouring properties. The question, if the court of this building be kept open or be covered in, is left to the discretion of the competing architects. There is to be only one story, above the ground-floor, in which different apartments can be distributed. For the electric telegraph, on the upper story, two rooms are to be provided, one of which is to have 100 mètres superficially. The whole building must be fireproof. Though the site has been resolved upon at present, nothing is to prevent the examination of plans for any other site that might offer extraordinary advantages.

All plans are to be sent in, post-free, to the civic administration of Antwerp, before the 31st of January, 1859. 6,500 francs are to be divided among the first six successful candidates; 4,000 for the first, and 500 for each of the other five. The plans sent in are all to be the property of the town council.

FOREIGN INTELLIGENCE.

THE inauguration of the new bridges of Bougival and Croissy, on the Seine, took place on the 7th ult. These bridges establish a direct communication between St. Cloud and Le Vésinet. The superstructure and parapets are of cast iron, and the piers are mill-grit, with dressed ashlar facings. The road is macadamised.

The Museum of the Louvre has just been enriched with many important paintings of the Spanish schools, from the collection of Marshal Soult. One represents the "Birth of the Virgin," and is considered superior to the "Assumption," by the same master, which cost 600,000f. These two new works were bought for 300,000f. Teniers's works at the Louvre are to be cleaned up. The process of removing the old varnish from Rubens's pictures has so well succeeded, that it will be carried out on all the works of the ancient masters. (?)

The House that Jacques built.—In Paris, in the commune of Plaisance, between Vaugirard and Montrouge, a remarkable house, six stories high, is to be seen. It has been built by one man alone, of extraordinary talent and perseverance, since it is asserted that he possessed no architectural prowess, nor had he ever worked at a building. The structure is described as elegant and well built throughout, and the work bears the closest inspection of the most practised eye. The proprietor and constructor is a Mons. Pernot, endowed with a most tenacious *volonté*, and a patience unexampled in the annals of construction. For twelve years did he labour, three hours a day, at the raising of his dwelling, stone by stone, block by block, window by window, finishing off his work room by room, carpentry work, joinery, smith's work—all by the same hand. A curious example of patience and handicraft is this most interesting work.

The shaft of the engine, which serves for the extraction of the ore and the pumping out of the water of the St. Martin shafts at the Pranal mines, was broken on the 29th September. During the necessary repairs, the pit was completely full of water, which was speedily removed by the machine as soon as it could be got to work.

At Havre, on the 11th ultimo, an enormous mahogany log was landed by the *Alliance* steamer from Southampton. At the thicker end it was 1m. 80c. by 1m. 05c. and 85 centimètres square at the smaller end (8 mètres in length). Two smaller ones were with it, and the three left for Paris by train.

All "old Paris" having been, or having to be, cleared away, any spots that yet remain untouched by the improving hand of the present Government cannot fail to interest all who visit that capital. To Frenchmen in general old houses and old prisons are of very little interest at present: they are tired of gazing at the remains of structures whose memory is anything but pleasant, and which they "cheerfully forget" while contemplating the modern wonders of their city. An old house, remarkable for its quaint style of architecture, stands, amid the storm of pickaxes, in the Rue Vieille du Temple. It is called the Hôtel des Etats ou Ambassadeurs de Holland, and has a sculptured façade in the courtyard, bearing the date 1660. This was the scene of a tragic event—the assassination of the Duke of Orleans.

We hear from Warsaw that the fire which broke out in the Lazienski palace has done considerable damage to that edifice. The valuable frescoes are utterly destroyed, and many fine paintings injured. The loss materially is only 100,000 roubles; but artistically it is irreparable.

Discovery of an Ancient Roman Villa.—The Belgian journals contain an account of an interesting discovery, at Saint Gerard, of a Roman villa. The first researches having been only shortly commenced, no idea can yet be formed as to the actual extent of the ruins; but, from the immense quantity of fragments, it is presumed to be considerable. The principal dwelling appears to have communicated with minor dependencies by means of pavement, which are being brought to light, as have also been the foundations to several chambers, and a hypocaust a mètre and a half deep. Other chambers, of which the use is not apparent, are of a less depth. All are lined with Roman pavement of a thickness varying from 15 to 35 centimètres, and in three coatings; the first, pebbles and small broken stones (*statuminatio*); the second, broken stones and lime (*ruderatio*); the third, pounded tiles steeped in quicklime (*nucleus*). The foundation walls, which in some places are on a level with the ground, are of a uniform structure (*isodomum*), viz. small fitted and squared rubble in courses of 8 centimètres: in some cases these alternate with bricks on the flat. A coat of cement 5 centimètres thick appears to have been laid on all the walls.

SANITARY CONDITION OF WINDSOR.

THERE is a rumour of something being wrong with the sewerage and drainage at Windsor, as there is an outbreak of typhus fever in that town. The officers of the Government Board, Messrs. Simon and Austin, have been down to Windsor to investigate matters. Whether any report they write will be made public or not we cannot say. Under the new fit of official economy, "the Treasury" may consider the cost of paper and ink too great. Public sewerage works were partially carried out in Windsor and in Eton some years ago; devised, if we remember rightly, by Mr. John Roe. That these works have never been completed, and that such portion as was executed has been sadly neglected, we have, from time to time, received evidence. The Board quarrelled with one local surveyor; and, as we are informed, no competent man has ever been appointed. This is, indeed, the rock upon which most local boards are wrecked: even those which (as at Windsor) have had good works planned, have had them executed only to be ruinously managed, at from 20*l.* to 80*l.* a year salary, to some person who is, perhaps, road surveyor as well, and inspector of nuisances (the local Board and himself, under such vile arrangements, becoming the greatest nuisance). We must give a list some day of the towns in which sanitary works have been commenced and carried out, with the present salaries of the "resident engineers." Whatever mischief there may be at Windsor, we shall scarcely look to find the cause in Mr. John Roe's plans, but in the local neglect to complete and properly manage the sewers and drains. We beg most earnestly to warn all towns, by telling them that sewage remaining in sewers to corrupt and ferment is far more dangerous than the same amount of filth on the surfaces of the streets, courts, and yards. And if there are steep gradients, and inadequate ventilation, the steep gradients, which ought to facilitate drainage, only add to the danger; as gases, warmer and lighter than common air, flow up, just as water flows down. Houses and towns on the tops or sides of hills, with sewers or drains down to the valleys, if the sewers and drains have not ample means of ventilation at the higher points, external to the houses, may conduct streams of deadly gases, rapidly too, within the houses, and so place the unfortunate inhabitants in a far worse position than if they had neither sewers nor drains. We shall not be

surprised if something of this sort exists at Windsor. The main sewers have never been completed: there is no adequate local water-supply: the sewers are full of *old deposit*; and there are no adequate means of ventilation. We know nothing of the local surveyor, and will not therefore bring any charge against him: we wait for evidence. We trust "the Castle" is safe. Mr. John Turnbull, the clerk of works at Windsor Castle, is reputed able and careful, and is not likely to have neglected ventilation. We would, however, say to all parties, see that all sewers and drains have abundant external means of ventilation. There may be too little: there cannot be too much. There should not be a chance for gases of decomposition to enter any house or inhabited room.

"ATLANTIC TELEGRAPH CABLE."

In the experiments that have been made public on electric telegraph cables, submerged at great depths, I have not seen one that must be of primary importance to their success.

The Atlantic cable, having been submerged in a depth of water exceeding 2,000 fathoms, is thereby subjected to a pressure of nearly 2¼ tons on the square inch. At a pressure not much greater than this, I have seen water forced through both iron and gun-metal many inches in thickness, having every appearance of being sound, and which were previously considered impermeable.

Will the gutta-percha coating of the cable resist the passage of water at this pressure? If not, the insulation must be broken.

If this experiment has not been tried, it would be of great importance to the future success of these cables that it should be made, not merely by subjecting the materials to this extreme pressure for a short time, but by allowing them to remain under it for a very lengthened period.

Even if water at these pressures does *not* actually pass through the material, may not the extreme condensation of the gutta-percha destroy, to a certain extent, the insulation of the wire?

The effect that "earth currents" appear to have produced seem to me to strengthen the probability that the insulation of the wire has been injured by one or other of these causes.

Wm. Jeakes.

ARCHITECTURAL ASSOCIATION.

THE CONSTRUCTION OF BUILDINGS IN REFERENCE TO SOUND.

The third meeting of the present session was held on Friday, the 26th, at Lyons-inn Hall, Strand, Mr. J. Norton, president, in the chair.

The following gentlemen having been proposed, were elected members of the Association: Mr. Hirst, of Bristol; Mr. New, of Dorchester-place; and Mr. Edward Hide.

The President read a letter from Mr. Edmeston, Secretary to the Architectural Union Company, in which that gentleman proposed, on behalf of the Company, to let to the Association the west gallery in the new building in Conduit-street at a rent of 30*l.* per annum for the Friday evenings throughout the year, and for class-rooms, two rooms in the front at 25*l.* or two middle rooms at 15*l.* per annum for the sole occupation of the Association. He (the President) had to inform the meeting that the Committee met on the previous Friday, and having considered the proposition, agreed to the following resolution:—"That in the absence of a definite statement of the advantages to be derived by the Architectural Association sufficient to countervail the increased payment, the less central position of Conduit-street, and the loss of individuality which the proximity to other kindred societies would entail, the Committee are not prepared to entertain the proposition of the Architectural Union." With regard to this resolution he confessed it had not his entire approbation, and he hoped that eventually any difficulties which might now exist with respect to the proposed removal to Conduit-street would be overcome. For his own part, he inclined to the opinion that the public expected them to remove into better quarters, and that if they could not come to terms with the Union, it might lead to disappointment. He hoped that some gentleman on the Committee would state the grounds upon which they had arrived at the resolution.

Mr. Rickman said that he had drawn up the resolution, in order to give expression to what appeared to be the views of the Committee. They had discussed the subject fully, and had entered into details: but when a list of queries had been prepared to put to the Company, they found that they were unprovided with any definite statement of what the advantages were which were to accrue to the Association by joining the Union. They had ascertained, not officially from the Union, but incidentally through a private source, that the gallery would not be so large as the room which they now had, and they were also of opinion, regard being had to the situation of Lyons'-inn, that it would be more convenient to a large proportion of the members than Conduit-street. The rent of the Union gallery would also be 6*l.* per annum more than the Association now paid, although the accommodation would be less. Another important question considered by the Committee was, that if they moved to Conduit-street, they would not have the use of the Hall during the exhibitions. He also understood they were to have some advantages in connection with the library of the Royal Institute of Architects. This advantage might accrue to them at some period or other, and it might be set off against the disadvantages he had mentioned. Under these circumstances, the general idea of the Committee was, that it would be better to wait until there was some more definite understanding with the Union, especially as the gallery was not even built yet.

Mr. Hayward expressed his opinion that, after the explanation given by Mr. Rickman, the resolution might be regarded as less strong than the wording would seem to indicate. As a member of the Association, and also as the holder of a share in the Union Company, he should be sorry to see anything like a damper put upon the prospect of the Associations uniting under one roof. It seemed to him there was an objection in some quarters to unite with any body for the good of the profession; but, after Mr. Rickman's observation, he could not regard the resolution of the committee as final. The Association had, no doubt, advantages in being alone; and, if he had any reason to believe it was about to be absorbed in any other, he would be opposed to going to Conduit-street; but, as he could not see any prospect of losing their individuality by joining their elder brother, he was in favour of uniting under the same roof.

The President said, with respect to the use of the library, referred to by Mr. Rickman, he (the president) did not suppose that the secretary to the Union Company could have referred to the subject except in the way of suggestion, or as an advantage which might possibly accrue hereafter by joining the Union. For his own part, as a member of the three bodies, he would always vote for throwing open the library to the Association; a step, however, which it must be remembered, could not be taken until the Association and the Institute were under one roof.

Mr. Capes expressed his apprehension that the resolution might be regarded by the profession at large as an indication that the Association wished to keep aloof from the other architectural associations, and that it was not open to reason. He would be sorry to see so strong a resolution adopted, and therefore suggested whether it might not be referred back to the meeting for reconsideration.

After some conversation with reference to the adoption of the resolution, a motion was ultimately passed requesting the president to confer with Mr. Edmeston on the subject.

The President announced that the same committee had agreed to the following resolution: "That the committee request the general body of members to empower the committee of the Architectural Association to renew their meetings on the subject of competitions, with power to add to their number."

The resolution was put to the vote, and approved.

The adjourned discussion on Mr. T. R. Smith's paper, on the Construction of Buildings in reference to Sound, was then resumed.

The President having given a brief *résumé* of the previous discussion,

Mr. Smith read a short communication from Mr. Charles B. Arding, in which the writer having referred to Mr. Scott Russell's paper, published in the *Builder*, of May 23, 1846, and subsequently discussed in the pages of this journal, expressed his opinion that the theory of Mr. Smith, with regard to placing the speaker close to the ceiling of a building, would not hold good if the angle were less than thirty degrees. In many churches built during the last two centuries, the pulpit and reading-desk were placed in the centre line of the church, at a considerable height from the floor, and frequently with a sounding-board above the pulpit. In most churches, however, this arrangement was departed from, the pulpit and reading-desk being placed right and left of the chancel, at a much less height, and without the sounding-board. He asked whether there were "sound" reasons for these alterations. The writer also suggested whether it might not be well to place the pulpit of a church in the chancel, the ceiling of which was usually lower than that of the church, and might be made lower still. The polygonal roofs, now much in vogue for the chancels of Gothic churches, were probably favourable for sound, and might be used for the nave roof also; or if open-timbered roofs were simply boarded or ceiled at the level of the collar, the character of the open roof might be preserved, and its acoustic qualities improved. The fact that many buildings were better for hearing when full of people, might arise partly from the increase of temperature. The resonance in large buildings might arise from the great quantity of air enclosed in them, which, when once set in motion, continues so for a considerable time, like the vibration of a large bell. The writer, in conclusion, instanced St. Martin's-hall and the large lecture-room at the Polytechnic Institution, as being good for sound, and the following as defective:—The Temple Church, Regent's-square (Scotch) Church, South Hackney Church, New Assize Courts, Taunton; the General Meeting-room, Euston Railway Station; Myddleton-hall, Islington; and the main building of the Polytechnic.

The President said he had received a note from Mr. Edward Barry on the subject under discussion, and which also contained an announcement which he was sure would be received with pleasure. Mr. Barry wrote, "I fear I cannot help you. The present form of ceiling of the House of Commons was the result of experiment, the former square ceiling being pronounced a failure, but the latter was only tried a few days, and not thoroughly tested. The present ceiling is lower than the old one, and with shelving sides, which no doubt act favourably as reflectors of sound, and I believe the room is now pronounced a success by members. I had a delightful holiday in Italy, and my father has, I am glad to say, returned from Malvern quite restored."

Mr. Hayward said he could mention a rather curious fact as an illustration of the power of water as a conductor of sound. While at Grasmere last summer he ascended a hill which rose up abruptly from the edge of the water, and while sitting there with a friend, they perceived a boat with a man and a boy fishing in it a long way off on the lake. Although the distance was very considerable, they could distinctly hear almost every word said by those in the boat. This went to show that noise ascended instead of descended, for while he heard words from the boat, he could not hear his friend's voice at a little distance on the same level with himself. He had also ascertained, by experiments in church-building, that if a "hip" were constructed at the east end, the effect was to throw the voice of the speaker very much forward. The pulpit in that case was placed low, and the experiment was found to answer expectation. He was aware, of course, that the "hip" was open to objection on the score of appearance, but in a chapel where it was essential that the voice of the speaker should reach every part of the building, its introduction was found extremely useful. He hoped that Mr. Smith's paper would lead to the introduction of some fixed principle on this subject.

Mr. T. W. Horn observed that Mr. Smith had referred to the opinion of Saunders, who held that sound had a tendency to descend, but that from all he (Mr. Horn) could collect, his opinion was, that it had a tendency to ascend. He had made an experiment himself when at the bottom of a well 150 feet deep. He there found that when there was nothing behind him but the wall or side of the well, he could not hear the persons at the top unless they shouted as loud as they could, while his own voice from the bottom of the well was heard with great distinctness by those above. He also found that, during the concerts at the Crystal Palace, the higher you went up in the gallery the more distinctly could the music be heard. It was likewise pretty well established that organs better heard when placed on the ground than in a gallery. If sound descended instead of ascended, the organ would be heard, of course, with better effect in the gallery. When conversing on this subject with Mr. Hill, the well-known organ-builder, that gentleman had told him that in his opinion the Birmingham Town-hall, which had a gallery all round, was the best room for music within his knowledge. He (Mr. Horn) had built a music-hall, and by "hipping" off the end, found the experiment to answer admirably well. Mr. Smith recommended placing the organ in a music-

hall in an alcove, but this had been tried at St. James's Hall, where it had failed.

Mr. Smith said it did not follow as a necessary consequence that, because the alcove had failed in St. James's Hall, it would fail elsewhere. He believed that the failure at St. James's Hall was to be traced to the ceiling, which resembled a great tunnel. The experiment made by Saunders was made on a scaffold in the open air, and his impression was, that distinct sounds were lost at a given height, while the same sound could be heard distinctly below. With regard to organ pipes, they were always thrown upwards, and the natural result was, that the sound would spread more upwards than downwards.

Mr. Capes referred to a correspondence in the *Builder* in 1847, in which it was stated that, in proportion as the air in a building filled with persons became foul, the more indistinct became the sound.

A member observed that, with regard to the alcove, it had been tried with success in the new Town Hall at Leeds, where a fine instrument had been fixed. There were no galleries in that building, with the exception of one (very small) facing the orchestra.

The discussion having been brought to a conclusion,

The president stated that Mr. Ash had been good enough to promise them a paper on the mode of making brass and iron ornamental castings, but as the hour was so advanced, he would suggest that the discussion be taken on the next evening of meeting.

This suggestion having been approved,

Mr. Ash said he had not prepared any paper, as he considered he could make himself more intelligible by an oral explanation. He then proceeded to explain in detail the manufacturing castings.

At the conclusion, the discussion was adjourned until the next evening of meeting, and the proceedings terminated, thanks having been awarded to Mr. Ash.

THE ARCHITECTURAL UNION COMPANY.

THE first annual general meeting of this company was held on Wednesday last, at the rooms of the Royal Institute of British Architects.

The chair was occupied by Mr. E. B. Lamb.

Mr. Edmeston, the hon. secretary, read the balance-sheet and statement of accounts, from which it appeared that 5,676*l.* had been received from shareholders in respect of 999 shares; on which shares 7*l.* 10s. per share had been paid; 930*l.* from shareholders in advance of calls; 4,000*l.* borrowed on mortgage of the company's premises in Conduit-street; 37*l.* 10s. 10d. received from other sources; making a total on the debit side of 10,044*l.* 0s. 10d. The estimate of debts and liabilities included the following estimated balance of expenses connected with the alterations of and additions to the property, 4,650*l.*; bill for printing and stationary, 65*l.* 9s. 11d.; balance of solicitor's charges, 149*l.* 19s. 8d. The property and assets of the company at the credit side of the account were thus set forth:—Cash paid for purchase of leasehold property in Conduit-street, 8,000*l.*; fixtures therein, 183*l.* 5s. 6d.; rates, taxes, and interest to the day of possession, 45*l.* 14s. 8d.; Messrs. Hack and Son, on account of alterations and additions to the property, 500*l.*; fire-insurance and seal of company, 70*l.* 13s. 4d.; miscellaneous expenses, 290*l.* 7s. 1d.; debts due to the company, viz. the premium to be paid by the Institute of British Artists, 500*l.*; calls due from shareholders considered good, 1,521*l.* 10s.; ditto, doubtful, 82*l.* 10s.; ditto, from directors and officers, considered good, 212*l.* 10s.; calls which may yet be made on the shares subscribed for, 2,167*l.* 10s.; total of debts due to the company, 4,484*l.*; cash at the London and Westminster Bank, St. James's-square, 947*l.* 9s. 10d.; ditto, in hands of secretary, 6*l.* 10s. 5d.; total, 10,044*l.* 0s. 10d.

The Chairman then called upon the hon. secretary to read the report of the directors, which was as follows:—

"The directors having so recently as last May summoned an extraordinary general meeting of shareholders for explaining all the different steps taken in establishing the company, have at this time but little to add. They have steadily persevered in carrying out the different operations which were on that occasion approved by the shareholders. They have completed the purchase of the premises, and have contracted for the alterations and improvements, and as quickly as possible they will give possession to the different tenants. The alterations being of a complicated character, and interfering very much with the original structure of the large house, required to be proceeded with in a very careful way. Messrs. Hack and Son, the contractors, have, however, paid every attention, and have adopted every precaution, so that the difficulties which presented themselves may now be considered as surmounted, and much more rapid steps may be taken towards completion. The terms of the leases or agreements for letting the ground-floor, that portion of the premises let to the Royal Institute of British Architects, and for letting the galleries to the Architectural Exhibition, and for the accommodation of the Architectural Association, are all in the course of arrangement. The directors will steadily continue to use every effort to turn the remainder of the premises to the best advantage. Meantime it is satisfactory to know that the rentals of the above will alone amount to 680*l.* per annum. On reference to the balance-sheet, which is already in the hands of the shareholders, it will be seen that debts due to the company, and cash in hand, amount together to 5,438*l.* while debts owing and liabilities amount to 4,808*l.* leaving a balance of more than 500*l.* to meet any contingent outlay which may arise. The unallotted shares amounting to about 5,000*l.* will be more than sufficient, if taken up, to clear off the mortgage of 4,000*l.* which is not repayable for four years. With reference to the arrears of calls, it should be noticed that Messrs. Hack and Son are only called upon to pay theirs, as payments on account of their contract are made to them, by which 900*l.* of the apparently large arrear is accounted for; and beyond all doubt the greater part of the remainder will be cleared off before the 15th of the present month, the day upon which a list of defaulters must be registered; indeed, since the issue of the balance-sheet this has already been done in several instances. The directors take the opportunity of making known that there will be two good sets of chambers to let on the second floor, and four rooms on the third floor; also a meeting-room on the ground floor, for societies, well warmed and lighted, upon any evening in the week permanently or occasionally, except upon the Friday and Tuesday evenings. The shareholders will hear with much advantage that Mr. Tite, M.P. the deputy-chairman of the company, having ceased to be a member of the company by the donation of his shares to the Institute, immediately subscribed for ten more shares, not included in those enumerated in the balance-sheet, and is still, therefore, the deputy-chairman of the company, having been unanimously re-elected to that office by the directors. One-third of the directors have retired by ballot, in accordance with the articles of association; but being eligible, offer themselves for re-election. In like manner the auditors retire, but being eligible, offer themselves for re-election. The auditors have carefully examined the balance-sheet laid before you. In conclusion, the directors again call upon the shareholders, and upon all those interested in the prosperity and advance of the architectural profession to assist in completing the establishment of the company on the soundest basis, that thus the means may be efficiently provided for consolidating and improving in public estimation all the leading societies connected with the art, and so that from this time forth architecture and its professors may, with the help of the Architectural Union Company, take a higher and more influential position than has ever been before."

Mr. Mayhew (one of the directors) moved that the report be read and adopted, and observed that he had little to add except the expression of the hope that the building would be completed within the given time, and that they would be able to give satisfactory accommodation to their new tenants. In calculating the return which the capital was likely to yield, he believed he might say that it would realize five and three quarters per cent. The total amount was 15,000*l.*, and he believed they would not require debentures, loans, or anything of that sort. He hoped that, when the building was completed, it would be a means of bringing all the architectural bodies together in harmony under one roof.

Mr. Mair said it appeared to him that the balance-sheet had been made out in a somewhat confused and unsatisfactory manner. As the auditors had been over it, he had no doubt as to its correctness; at the same time, if it could have been put in a more commercial and less legal manner, it might have been clearer to the great body of shareholders. He wished to ask one or two questions as to the rents to be received. The Royal Institute of Architects was, he believed, to pay a fixed rent, and the ground-floor was also to be let upon lease.

The Chairman.—That is so, but the lease is not yet signed. The rents to be received will, it is estimated, amount to 680*l.* per annum.

Mr. Edmeston said that the contractors were bound to complete by the 25th of March next, under a penalty. They were using every possible effort to keep faith: the roofs were up, though not slated: the galleries were made, and there was no reason why all possible speed should not be used in getting the work completed.

Mr. Mayhew observed, that so much was necessary to be done to the premises, that, in point of fact, it amounted to a rebuilding.

The Solicitor to the Company explained, that the balance-sheet had been put into its present form to meet requirements of the articles of association.

Mr. W. Papworth said the account was not in his opinion sufficiently clear to men of business. If there had been a few lines at foot of the account, showing that, although there was a debt of 4,000*l.* there were 500 shares to be taken up, and that a large sum remained to be received, the company would appear to be better off by the sum of 1,500*l.* than it now seemed at first sight to be.

Mr. Graham thought the statement was very clear, but asked whether any estimate had been made what the portion of the building unlet would produce.

Mr. Mayhew.—The total rental is estimated at 1,040*l.* and the disbursements at 270*l.* leaving a balance of 770*l.* which, upon a capital of 13,500*l.* would give 5¾ per cent.

The Chairman then put the motion for the adoption of the report, which was carried unanimously.

On the motion of the Chairman, seconded by Mr. Mair, the following gentlemen were re-elected directors—Messrs. Pennethorne, Ashpitel, I'Anson, P. C. Hardwick, J. Wylson, and George Morgan.

The retiring auditors, Messrs. J. Lockyer and J. P. Cockerell, were also unanimously re-elected.

Mr. Nash proposed a vote of thanks to the gentlemen who had taken charge of their affairs during the past year. They had all acted gratuitously, and, therefore, they were doubly entitled to the thanks of the meeting. He proposed that the cordial thanks of the meeting be given to the honorary directors, honorary secretary, and auditors, for their gratuitous services in establishing and conducting the business of the company.

Mr. Mair seconded the motion, and said the shareholders had only to go to Conduit-street to see what had been done by direction of the Board. In his opinion, the works now in course of construction were extremely satisfactory.

Mr. Mayhew acknowledged the compliment on behalf of the Board of Directors, and said that until the ship was fairly afloat, they had no intention of deserting her, but would do their best to carry out the undertaking. He was bound to say that the directors never could have met with so much success, had it not been for the assistance afforded to them by the zealous and efficient honorary secretary, Mr. Edmeston.

Mr. Edmeston said that as Mr. Mayhew had been kind enough to refer to him in such complimentary terms, he would venture to say a few words, and express his hope that in a few months the company would be able to congratulate themselves upon having surmounted all their difficulties. If a proper spirit of liberality and good feeling animated all the societies, they would not only mutually assist each other, but possibly confer benefits upon the architects' profession, which might prove larger than anything they could now anticipate.

The motion having been carried, the best thanks of the meeting were given to the chairman for presiding; and to the Royal Institute of Architects, for the use of their rooms for the meeting.

The Chairman, and Mr. C. C. Nelson, honorary secretary of the Institute of Architects, having returned thanks, the meeting separated.

THE SCHOOL OF ART FOR GLOUCESTER.

THE Annual Meeting of the Diocesan Schoolmasters' Association was held on Friday, the 26th, in the Corn Exchange, when Mr. James P. Knight, of the Cheltenham School of Art, read a paper "On the Advantages of introducing Drawing as a Part of National Education," showing the necessity of educating the eyes and hands of that class from whence must come our future workmen and workwomen, insisting also upon the necessity of educating the tastes of all classes, as being the consumers of manufactured articles, and the practical arbitrators who, creating the demand, rule the supply. Attention was also drawn to the inducements and rewards offered by the Department of Science and Art, and an announcement was made that classes in connection with the Cheltenham School of Art were about to be immediately established in Gloucester.

At the close of the paper the Archdeacon of Bristol, who occupied the chair, was requested by the schoolmasters present to beg Mr. Knight to start a special Saturday class, for the benefit of themselves and their pupil teachers, and an inquiry was made as to what was the minimum number of members which would ensure compliance with the request: thirty was the number named, and it was thought that a list at least to that extent could be made up before the members left the room.

An interesting lecture by the Rev. Dr. Booth on "The Schoolmaster as affected by Competitive Examinations" followed, after which the members and friends dined at the King's Head Hotel, and the day's proceedings terminated with a discussion of the question of "Rational Amusement and Occupation for Young Men on Winter Evenings," in which several of the members of the Association, as well as clergymen and gentlemen of the city and neighbourhood, took part.

The Mayor of Gloucester has since issued invitations to a meeting for the purpose of devising means for the immediate establishment of a branch chool in the city of Gloucester.

PROCEEDINGS UNDER METROPOLITAN BUILDING ACT.

EAVES OR CORNICES OF ROOFS.

At Marlborough-street Police-office, on the 23rd ult. Mr. Richard Mason, of Union-street, Berkeley-square, was summoned for that he "did make a new wooden roof to a building in Farm-street livery stables (belonging to Mr. Bonnett), in St. George's, Hanover-square, which projected beyond the face of the external wall, such projection not being of fireproof material, as required by the Act."

Mr. Edward Hakewell, district surveyor, in support of the information, said,—The Metropolitan Building Act enacts, in the 26th section, that all projections from external walls shall be of incombustible materials, and that permission shall be obtained from the Metropolitan Board to erect the same.

Mr. Beadon, on reference to the Act, observed that there were considerable exceptions.

Mr. Hakewell said very few. In the prosecution of his duties as surveyor, he had found occasion to survey, from the 10th of September last to the present time, the works in question. The roof of the building was of wood or timber, and projected 8 feet beyond the external wall: it was not made of fireproof material, and was therefore directly contrary to the regulation provided for by the Act under which the summons was obtained.

The defendant contended that it was not such a projection as came within the meaning of the Building Act. The projection in question was over private property, and not over the public highway.

Mr. Beadon observed that the clause expressly alluded to overhanging roofs, and required that the eaves or cornices of such should be formed of non-combustible materials, but not the roof itself. The clause alluded unquestionably to a particular portion of a thing, and not the thing itself. There was in the clause no such requirement as the roof itself—that was excluded—and it provided that the eaves and cornices of an overhanging roof only should be non-combustible; that was, formed of copper or some other metal, and by these were meant of course the extreme parts or points of the roof. He was clearly of opinion that the summons could not be supported, and it must consequently be dismissed.

Books Received.

Transactions of the Institution of Engineers in Scotland. Vol. I. First Session, 1857-8. Glasgow.

The Institution of Engineers in Scotland owes its origin chiefly to the very successful meeting held in Glasgow in 1856 by the Birmingham Institution of Mechanical Engineers, of which meeting, as well as of the Scottish Institution itself, and its meetings and papers, we have already given some account. At the termination of the session in April last, the latter Institution numbered 118 members and 8 graduates, and numerous additions are expected early in the second session. Eight meetings were held during the session, and at these as many as twenty-one papers on various subjects were read; each being followed by a discussion. On decimal measures also there were discussions, though no paper. The present volume contains these papers and discussions, so completing the record of the first session of the Institution. It includes papers on gas, heating of steam boilers, blowing-fans, steam pumping-engines and valves, speed-governors, screwing-machines, canal navigation by screw steamers, steam used expansively, hoists, boiler explosions, American and other locomotives, &c. &c.

The Handbook of Autographs. Executed by Frederick George Netherclift, Author of "The Autograph Miscellany." London: F. G. Netherclift, Mill-street, Conduit-street.

The idea of this handbook is a good one. It is intended as a ready guide to the handwriting of distinguished men and women, of every nation, and is designed for the use of literary men, autograph collectors, and others. The fac-similes are said to be taken principally from the British Museum, by permission of the trustees, and from other authentic sources. It is to appear in a series of alphabetical lists, without reference to country, rank, profession, or age. Each part is to contain six to eight specimens in each letter of the alphabet, and that is the case with the part now issued, which begins with Ariosto and ends with Horace Walpole. There is generally some fragment of writing to which the signature is attached, and in the same hand. There is something peculiarly interesting in the contemplation of the handwriting of the illustrious dead.

Skyring's Builders', Contractors', and Manufacturers' Diary and Daily Journal for 1859. 4, Copthall-buildings, Throgmorton-street.

This diary will be found useful by those to whom it is addressed. It contains ruled pages for appointments, cash paid and received, and a weekly time account, having room for the names of the workpeople employed, and six columns for the time worked in each day. It contains likewise the Metropolitan Building Act, and a number of tables and memoranda connected with building operations, concerning which latter we would remark, with a view to improvement in future issues, that builders and contractors nowadays look for good English and a clear style.

The Triumphs of Steam; or, Stories from the Lives of Watt, Arkwright, and Stephenson. By the Author of "Our Eastern Empire," &c. With Illustrations by John Gilbert. London: Griffith and Farran, St. Paul's-churchyard.

This little volume is well adapted to attract the young, and to excite their interest in the triumphs of steam. It is written in a simple and easy colloquial style, suitable to the readers for whom it is intended. The book is dedicated to Mr. Robert Stephenson by the author, who says she owes much to his early influence.

VARIORUM.

Our popular writers are becoming exceedingly skilful in administering digestible doses of useful information, diluted in palatable vehicles, adapted to the popular taste. Here is a good deal of information on rather an obscure subject—the Chinese,—in the form of a dainty little volume, under the title of "The War-Tiger; or, Adventures and Wonderful Fortunes of the Young Sea Chief and his Lad, Chow: a Tale of the Conquest of India;" by William Dalton, author of "The Wolf-Boy of China," &c.; with illustrations by H. S. Melville (Griffith and Farran, St. Paul's-churchyard). How our recent partial insight into the manners and customs of the Chinese may tally with or bear upon Mr. Dalton's ideas of that quaint people, of whose "manners, laws, legends, superstitions, history, and character," he professes to give here some idea, we confess we have not time to consider; but the tale appears to be well adapted to draw the popular attention to the subject.

Miscellanea.

The Lions for the Nelson Column.—It is currently stated, we cannot answer for the correctness of the report, that though Sir Edwin Landseer will furnish the models for the lions, they will be executed in granite by the Baron Marochetti.

Metal Market.—The price of copper has been advanced one half-penny per lb., making tough cake and tough tile ingots 102*l.* 10*s.*; best selected, 105*l.* 10*s.* per ton, in quantities of three tons. Smaller quantities, 20*s.* per ton extra.

The Royal Society.—The anniversary meeting of the Royal Society was held on Tuesday, at Burlington House, on which occasion Lord Wrottesley delivered his annual address, reviewing the progress of science during the past year. The medals were then awarded as follows:—The Copley Medal, to Sir Charles Lyell for his various researches and writings, by which he has contributed to the advance of geology; a Royal Medal to Mr. Albany Hancock for his various researches on the anatomy of the mollusca, the Second Royal Medal to Mr. William Lassell for his various astronomical discoveries and researches; and the Rumford Medal to Professor Jamin, of Paris, for his various experimental researches on light. Sir Benjamin Brodie, bart. was president. The new meeting-room, a fine apartment so far as regards size, is somewhat bare in aspect, notwithstanding the pictures on the walls. A little colour and gilding in the cornice would be a great improvement. The sitting accommodation was excellent.

Somersetshire Archæological Society.—The first *conversazione* was held on Monday, 22nd, at the Society's Museum, Taunton. The chief additional object of interest which the museum presented was the new oaken case for the reception of the Pigott collection of drawings, &c. It is a handsome massive piece of furniture, of mediæval design, executed by Mr. H. Davis, ecclesiastical carver, of this town. Dr. Metford read a narrative of the natural history and geographical features of Teneriffe, one of the Canary Islands. Mr. W. F. Elliott next read an essay on "Gothic Mouldings," which was listened to with great attention; and the Rev. W. R. Clark followed with a paper on the poet laureate—Tennyson.

Glasgow Architectural Society.—On Tuesday, the 23rd, a meeting of this society was held, in the Scottish Exhibition Rooms. Mr. James Graham, in the absence of Sir Andrew Orr, occupied the chair. Mr. Wm. Maclean, the secretary, read the minute of last meeting of the society. Several gentlemen were admitted as members. Mr. James Salmon, architect, then read a paper on the subject of domestic sanitary arrangements and drainage.

Chelsea Vestry-hall Competition.—We have received several letters confirming the statements made in the letter from "the Authors of No. 12" in our last, and shall return to the subject shortly. One writer makes some strange revelations.

New Infirmary Woolwich.—The edifice intended as the Royal Marine Infirmary, under construction on the site of the Old Kent Waterworks, at Woolwich, now the property of Government, is progressing with rapidity, under the superintendence of Colonel Green, director of engineering and architectural works to the Admiralty. The total length of the new infirmary is 448 feet, breadth of wings, 191 feet, and height of each story 16 feet 6 inches. In addition to the wings there will be eight wards, extending beyond the principal walls, *on the pavilion principle:* each ward will contain space for the accommodation of fourteen patients, at the rate of 600 cubic feet to each patient. There will be three stories above the basement story, which latter will be appropriated as offices. The floors and walls, we are told, are being constructed of hard bricks, capable of being cleaned by washing, and not retaining any moisture. The windows will be double glazed, in order to check the severity of winter, and prevent an undue loss of heat. The windows of the convalescent wards, opening to the floors, will be furnished with verandah seats outside. It is satisfactory to us to find, here and elsewhere, that our teaching has not been thrown away.

Opening of the Mechanics' Hall, Frome.—A successful meeting in connection with the educational movement took place on the 25th ult., at Frome, in the new hall just erected for the mechanics. The Marquis of Bath presided, and the Hon. and Rev. S. G. Osborne delivered an able inaugural address. Amongst those present were the lord bishop of the diocese, Sir Henry A. Hoare, Bart. Mr. D. Nicoll, M.P. Lord Edward Thynne, and others. The Marquis made a few observations commendatory of the undertaking. Mr. Fisher laid before the meeting a statement of the financial position of the institution, from which it appeared that the cost was 1,536*l.* of which subscriptions to the amount of 798*l.* had been received, leaving a debt due of 738*l.*

Hugh Miller's Monument at Cromarty.—The foundation stone of the monument to be erected at Cromarty, in memory of Hugh Miller, was laid on Wednesday, 23rd. The monument will consist of a pillar about 50 feet high, surmounted by a statue of Hugh Miller, to be sculptured by Mr. Handyside Ritchie. The base is of old red sandstone, taken from the shore quarry, the first scene of Mr. Miller's labours, and of his geological researches. The rest of the work will be completed in a stone of a yellowish colour, obtained from the quarry at Davidston. The following inscription is to be engraved upon the base:—"In commemoration of the genius and the literary and scientific eminence of Hugh Miller, this monument is erected by his countrymen. He was born at Cromarty, 10th October, 1802, and died 24th December, 1856."

The Worcester School of Art.—The seventh annual meeting of this institution was held on Monday in last week; Lord Ward, the president, in the chair. The annual exhibition of the works of the pupils took place in the previous week. It contained more advanced works than its predecessors, according to the local *Chronicle*. The annual meeting was crowded. The report stated that during the past year 283 students had received instruction in the school, being less by thirteen than attended in the previous year. This decrease had taken place in the morning classes, and not in the artisan classes attending in the evening, a greater number of whom now attend the school than at any former period. During the first year of the operation of the school, in 1852, the average monthly attendance in the evening was about 74; in 1853, 95; in 1854, 111; in 1855, 106; in 1856, 134; in 1857, 126; and in 1858, the last year, 142; thus showing the average monthly attendance in the evening to have increased from 74 in the first year of the school to 142 in the past year. In addition to the instruction given in the school, elementary drawing is taught by a master from this school in four of the public schools in the city. The railway school, in which drawing is now taught by its master, is also in connection with the central school. About 560 children, pupils of these five schools, have now instruction in drawing, being an increase of 150 over the number for last year. Some appropriate resolutions were spoken to, and passed, and the prizes then distributed.

YORK CATHEDRAL.—The Dean and Chapter of York have issued a code of regulations for visitors inspecting York Cathedral. The vergers are not in future to take any gratuity, but are to be paid by salary. Each visitor is to make a specific payment (sixpence).

THE SURBITON DRAINAGE PLANS.—Some correspondents want to know what has become of the Surbiton Drainage Plans sent in on the 1st of July: "the system of keeping competitions undecided month after month, is very objectionable."

"WANTED A CONTRACTOR, to cut open the Isthmus of Suez.—Apply to Messrs. Lesseps and Co., Paris." Such is the advertisement put forth in a recent issue of the—*Charivari?* No,—of the *Presse*, according to the *Morning Herald's* Paris correspondent. The laconicism is somewhat Frenchified and affected, and is designed, doubtless, to induce the world to believe that French engineers think nothing of the doing of a work which a Stephenson advisedly declares, after personal and local study, to be little else than impracticable.

MONUMENT TO ALLAN RAMSAY AT EDINBURGH.—Lord Murray designs to embellish his native city by a monument to his distinguished ancestor, the poet Allan Ramsay. It is to be executed in marble, of quality similar to that of Sir Walter Scott's statue in the Monument at Edinburgh—a kind of marble calculated to endure exposure to the effects of time and weather.

NEW MOTIVE POWER.—An inhabitant of Chatteris, says a correspondent of the *Cambridge Chronicle*, has discovered a method by which a wheel of thirty or forty tons weight, and from thirty to sixty feet in diameter, may be set in motion by a child of ten or twelve years of age. It can be applied to all sorts of stationary engines at fifty per cent. less than steam, and the first expense would be a saving of seventy-five per cent.

A TELEGRAPH PROBLEM.—Whoever originated the following deserves to have his name handed down to posterity:—If a despatch from England to America gains on the sun so as to reach America four and a half hours by the clock before it left England, at what time would it arrive at the point of departure, were a cable carried round the world? Would it not arrive the day before it left, less only by the time exhausted in making the circuit? If so, then, with a continuous telegraph line round the world, why not send a despatch round and round until it reached back and back to Adam, to let him know what his children are about in these days?

THE WYKEHAMIST MEMORIAL.—The memorial to the Wykehamists who fell in the Crimean campaign, executed after the designs of Mr. Butterfield, has been erected in the porch of the chapel of Winchester College. It occupies the west wall, and consists of five cinquefoiled arches, with mosaic borders and patterns, divided by shafts of reddish marble. It is 16 feet in height, and in length 29 feet. The materials employed are Caen stone, Derbyshire fossil, and Devonshire marble. The stonework was executed by Field, of Parliament-street. The oak roof of the porch was renewed by Norris, of Marylebone-lane; and iron gates, wrought by Potter, of South Molton-street, are placed at the entrance from the middle court and in the door to the cloisters. The floor is laid with Minton's tiles. The panels within the arches, 8 feet by 4 feet 6 inches, bear the names of the fallen officers, and above the capitals of the shafts are angels bearing shields inscribed Faith, Virtue, Knowledge, Temperance, Patience, Charity. Beneath, on a broad band of gray marble, and above a bench table, is the verse; "He is not a God of the dead, but of the living, for all live unto Him."

THE HOSPITAL FOR SICK CHILDREN IN GREAT ORMOND-STREET.—There is only one institution in London which is appointed for the relief of the diseases of children, and we are glad to hear it is rapidly increasing in usefulness. At this place the children of the poor can have the best advice, and, as far as the funds which are contributed will admit of, young patients are received into the wards of the hospital. Besides giving the benefits which arise from the hospital, the committee have determined to open an infant nursery close by, on the plan of that commenced by Mr. Olivar. Here it is proposed to afford the means of education to nurses, and the same plan is proposed to be carried out in the hospital. The advantages which must be derived by the attendance of well-conducted young women, who intend to take the management of children, at these institutions, must be great; and no doubt those who can get a proper certificate from such a place as this will readily meet with remunerative employment.

TENDERS.

Aldershott Villa Company.—For four pairs of semi-detached villa residences, to be erected on this company's land at Aldershott, Hants. Mr. J. H. Rowley, architect:—

Myers, London	£4,875 0 0
Reynolds, Brighton	3,399 0 0
Dowsett, Farnham	3,150 0 0
Heather, Mousley	3,089 0 0
Gunning, London	2,924 15 0
Copp, London	2,760 0 0
Powell, London	2,740 0 0
Terry, Aldershott	2,596 0 0
Lee, Aldershott	2,460 0 0
Williams, London	2,337 12 0

For two villas, Fitzroy-road, Regent's Park-gardens, for the executors of the late Mr. C. Oldfield. Mr. R. C. Grantorex, architect:—

Batterbury	£2,191 0 0
Rowe	2,140 0 0
McLennan and Bird (accepted)	2,111 0 0

The following tenders for alterations at the "Census Tavern," Bemerton-street, Caledonian-road, for Mr. Mapp. Mr. Bird, architect:—

Ashby and Son	£568 0 0
Lawrence and Son	542 0 0
Ambroke	499 0 0
W. Buck	449 0 0
Green	425 0 0

For the drainage, laying out, and planting Camberwell-green. Mr. W. Berriman, surveyor.

Maynot	£305 0 0
Walker and Neaves	310 0 0
Walsh, Brixton	299 10 0
Rogers	295 0 0
Goddard	294 0 0
Kent	289 0 0
Wright and Co.	286 0 0
Constable, Peckham	285 0 0
Hare, Clapham	283 0 0
Burbey	284 0 0
Cook	283 8 0
Garner	279 9 7
Rumbold, Tunbridge Wells	276 10 0
Cannon	275 0 0
S. Cook	275 0 0
Strickson, Wood Green	266 0 0
Marshall	265 0 0
Lowden, Brixton	255 0 0
Powell	247 0 0
Neal, Wandsworth (accepted)	227 0 0

For alterations and repairs at Gurque House, Woodford-bridge, for Charles Davey, Esq. Mr. D. A. Cobbett, architect:—

Rivett	£943 0 0
Hedges	928 0 0
Newman and Mann	815 0 0
Savill	769 0 0

For setting a twenty-horse cylindrical boiler, under the direction of Mr. George Eves, 20 feet long and 5 feet 6 inches in diameter. The boiler was made by Horton, Son, and Kendrick, for the Uxbridge Local Board of Health, for their engines at water-works, in order to economize fuel if possible:—

Wakefield	£120 0 0
Galsworthy (accepted)	100 0 0
Hardy	95 0 0
Rose	93 0 0
D. Morten	60 0 0

TO CORRESPONDENTS.

Medieval Farm Buildings.—Your correspondent "H. P." mentions a fine barn, &c. "existing near the church" of "Besford, Eckington, and Bredon," which does he mean? See p. 716.—It is at Bredon.

V. W.—A. D. G.—B. C.—J. H.—J. H. (place the matter in proper hands and there will be no difficulty).—N. W.—R. S.—W. T. P. (it was designed by Mr. Hardwick).—P. D. Limehouse (a penny stamp is sufficient).—E. W. G. (we do not see on what grounds more than five per cent. can be charged on the amount credited for the old materials.)—C. G.—T. B. S.—J. H. R.—A. C.—E. G.—J. B.—R. M.—J. R.—E.—D. R. (thanks).—Dr. G.—F. B.—Messrs. H.—J. S.—S.—G. W. A.—W. C.—West Middlesex—J. P.—

ADVERTISEMENTS.

Just published, Price Sixpence,

THE STEPHENSON MONUMENT: WHAT SHOULD IT BE? A Question and Answer. Addressed to the Subscribers.

By THOMAS OLIVER, Architect.

"The very timely pamphlet of Mr. Oliver's will be read with interest. . . . . We most cordially agree with him."—*Daily Chronicle.*

"A monument to Stephenson's memory, we cordially agree with Mr. Oliver, should be something more than a mere statue."—*Newcastle Guardian.*

". . . . Since penning his pamphlet, Mr. Oliver discovered that, on the question of a merely sculptural, in preference to a combined architectural and sculptural monument, we had already pronounced opinions which are identical with his own."—*Gateshead Observer.*

Newcastle: M. and M. W. LAMBERT; and all Booksellers.

TO INVENTORS and PATENTEES.—All business relating to British and Foreign PATENTS and the REGISTRATION of DESIGNS, may be transacted at 47, Lincoln's-inn-fields, London, and 166, Buchanan-street, Glasgow.—"Hints to Inventors" free on application.

W. JOHNSON, C.E.
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TEMPORARY ASSISTANCE.—An Architect, who is accustomed to prepare perspective, finished working, and detail drawings, specifications, take out quantities, measure artificers' work, &c. is desirous of rendering TEMPORARY ASSISTANCE to ARCHITECTS, either at their own Offices, or his Chambers.—Address, R. P. G, Southampton-row, Russell-square, W.C.

THE ASSOCIATION for the PREVENTION of STEAM BOILER EXPLOSIONS, and for EFFECTING ECONOMY in the RAISING and USE of STEAM.—President, WILLIAM FAIRBAIRN, Esq. C.E. F.R.S. &c. &c.

To ENGINEERS.—WANTED, by this Association, an active, intelligent, and well-situated ENGINEER, theoretically and practically acquainted with the properties of steam, and thoroughly conversant with the details of steam-engines and boilers, to act as Chief Inspector under the Managing Committee. Salary, 300l. per annum, with railway expenses allowed.—Applications to be made to the undersigned, specifying age and qualification, accompanied with testimonials or references, on or before the 11th day of DECEMBER next.—By order,

HENRY WHITWORTH, Secretary.
Manchester, 13, Corporation-street, 30th November, 1858.

SCINDE RAILWAY COMPANY (Punjaub Railway).—To CIVIL ENGINEERS.—WANTED, immediately, some thoroughly-qualified ENGINEERS, to act as third-class Assistants in construction of the line. They must have a thorough practical knowledge of surveying, levelling, construction, setting out and measuring up works, &c. Salary, 350l. per annum, with travelling and field allowances. Candidates must be prepared to undergo a medical examination.—Apply, by letter only, inclosing copies of testimonials, to T. A. FARROW, Esq. C.E. Graham House, Old Broad-street, London. THOMAS BURNELL, Secretary.
Graham House, Old Broad-street, 29th November, 1858.

TO FOREMEN OF MASONS.

WANTED, a first-class Man, who thoroughly understands public work in all its branches, and who is fully acquainted with the jobbing trade, especially in marble and alabaster. Character must bear the strictest scrutiny.—Address, with references and terms, F. G. Post-office, Leicester.

WANTED, a short distance from Town, an energetic person as CLERK of WORKS, who is well acquainted with construction, competent to measure up work, and take out quantities. One able to assist at drawing in the office occasionally would be preferred.—Apply, stating age, terms, qualifications, and references, to G. S. Office of "The Builder."

WANTED, a respectable YOUNG MAN. He must write a good hand, and be quick at accounts. If accustomed to a builder's office he will be preferred. Salary 1l. 1s. per week.—Apply, by letter, to A. B. at Mr. Wood's, 46, Coleman-street, any afternoon except Thursdays.

TO VENEER SAWYERS.

WANTED, a steady, respectable MAN, to WORK a 10-foot SAW. A good workman will meet with constant employment.—Apply, by letter only, stating name and address, and where last employed, to T. Y. 4, Bedford-place, Old Kent-road.

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WANTED, for FIVE MONTHS from the present time, an experienced CLERK of WORKS, who understands the details of church work.—Apply, by letter only, giving references, and stating age and terms. An answer will be returned to those only whose applications are entertained.
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WANTED, by the Advertiser, a constant SITUATION as thoroughly good PAINTER and GLAZIER. Is also a good first-lead glazier. Wages, 25s. per week.—Address, R. L. 8, Caledonia-street, King's-cross, N.C.

WANTED, by a Young Man, a SITUATION as CLERK of WORKS, GENERAL FOREMAN, TIME-KEEPER, &c. or to take charge of Estate Work. Is well versed in all branches of building, road-work, &c. Can be highly recommended. Terms moderate.—Address, DADO, Norbiton Post-office, Kingston, Surrey.

TO PLUMBERS AND BUILDERS.

WANTED, by a steady and respectable young Man, a SITUATION as PLUMBER and PAINTER. Good reference if required.—Address, H. S. 12, Shepperton-street, New North-road, Islington.

TO RAILWAY CONTRACTORS AND OTHERS.

WANTED, by an experienced Man, a SITUATION as TIMEKEEPER, &c. Can produce ten years' good character from one of the largest firms in London.—Address, F. D. 36, York-street, York-road, Lambeth, S.

TO BUILDERS, PLUMBERS, &c.

WANTED, by an experienced Person, a permanent SITUATION as PLUMBER, or THREE-BRANCH HAND. Unexceptionable references given.—Address, C. G. No. 127, Crawford-street, Marylebone.

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WANTED, by the Advertiser, a young Man, aged 22, who has had eight years' experience in the Building line, a SITUATION as JUNIOR CLERK, in a Builder's Office, where he will be able to gain a thorough knowledge of office routine. Can make and trace working drawings, and write a good business hand. A moderate salary required.—Apply, by letter, B. J. C. No. 3, College-street, Islington, N.

TO ARCHITECTS AND BUILDERS.

WANTED, by the SON of a BUILDER, aged 21, a SITUATION as CLERK. Understands book-keeping, and has had some practice in the business. Terms moderate. Address, R. W. 17, George-street, Portman-square, W.

TO PLUMBERS, GAS-FITTERS, &c.

WANTED, by a Young Man, aged 23, a good PLUMBER, and has a knowledge of Gas-fitting, EMPLOYMENT, where he may gain improvement in the latter. Good reference if required.—Address, J. S. No. 9, Vincent-street, Stepney.

TO BUILDERS, PLUMBERS, PAINTERS, &c.

WANTED, a SITUATION as PLUMBER, or THREE-BRANCH HAND.—Address, A. D. Wigmore Coffee-house, 25, Wigmore-street, Cavendish-square.

TO SMITHS, BELLHANGERS, AND GAS-FITTERS.

WANTED, by an experienced Man, aged 28, a CONSTANT SITUATION, in town or country. Can have good reference from his last employer.—Address, A. Y. York-cottage, Bernard-terrace, Cornwall-place, Holloway.

WANTED, by a respectable Man, aged 31, of sober, steady, and active habits, a SITUATION as WORKING FOREMAN of BRICKLAYERS, being well acquainted with all its branches, and having a thorough knowledge in laying all kinds of stonework. Good references as to character and ability.—Address, M. B. 8, Bristol-place, Maida-hill, Paddington.

WANTED, a SITUATION, by a Youth, as JUNIOR CLERK; has been engaged in surveyors' and builders' offices about four years. Can trace drawings, square dimensions, and write a good hand.—Address, J. D. 22, Charrington-road North, Kentish-town.

WANTED, a permanent SITUATION in the Country, by an Assistant, who understands every description of perspective and projection, working drawings, specifications, practical details for every trade, superintendence of works and general management of an office, surveying and levelling, and has a fair knowledge of design and polychromatic decoration. First-class references, and further particulars, upon application to THETA, 17, Hill-street, Knightsbridge, London, S.W.

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THE Advertiser, who has had many years' connection with the above business, is open to an ENGAGEMENT. Is well acquainted with office business in all its branches, estimating, drawing, and measuring, &c. No objection to the country. Satisfactory references given.—Address, Q. E. D. care of Mr. Robinson, Post-office, Clifton-street, Finsbury.

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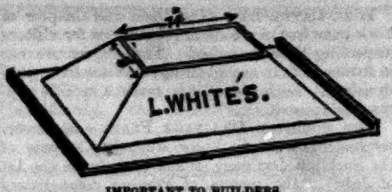

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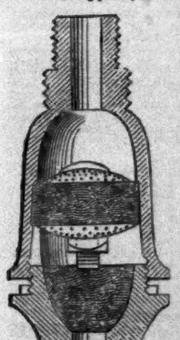

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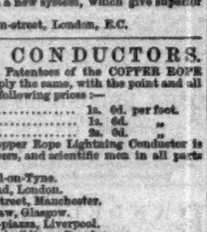

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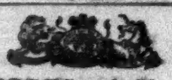
HEATING BY  HOT WATER.

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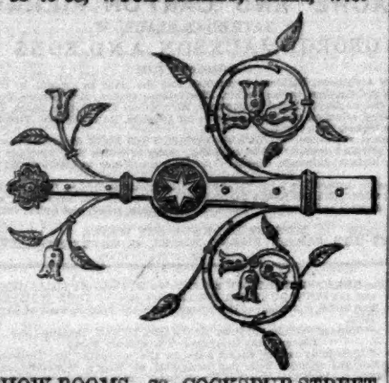

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